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CUSTOMERS' GUIDE TO COMPUTER SERVICES

Office of Management Information Systems

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CUSTOMERS' GUIDE TO COMPUTER SERVICES

OMIS
1 Ashburton Place
Boston, MA

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CUSTOMERS' GUIDE TO COMPUTER SERVICES

Table of Contents

Page

I. Introduction........ 1

II. How Do I Become An OMIS Customer?........ 2

1. Where Do I Start?........ 3
2. When Are Computer Systems Available?........ 5
3. How Is Data Processing Accomplished?........ 6
4. How Do I Receive Output?........ 8
5. What Data Storage and Backup Services Are Available?........ 9
6. How Can I Protect My Data?........ 10
7. What Will These Computer Services Cost Me?........ 11

III. Data Processing Services........ 13

1. Customer Assistance........ 14
2. Records Management Center........ 15
3. Specialized Education........ 15
4. Tours........ 19
5. The Library........ 19
6. Announcements........ 19

IV. Product Selection Guide........ 20

1. ABEND-AID........ 22
2. ACCOLADE........ 24
3. ADABAS........ 25
4. CA-OPTIMIZER........ 27
5. CICS........ 29
6. COM-PLETE........ 30
7. EASYTRIEVE........ 31
8. EASYTRIEVE PLUS........ 34
9. FOCUS........ 35
10. IMAGINE........ 36
11. ISPF/PDF........ 37
12. NATURAL........ 39
13. SAS........ 40
14. TSO........ 42

V. Utilities........ 47

1. IBM Utilities........ 48
2. DFSORT........ 48
3. Data Set Function (DSF)........ 49

TABLE OF CONTENTS

Page

VI. Compilers/Assemblers.................................... 51

1. IBM COBOL Compiler.................................... 52
2. FORTRAN Compiler.................................... 53
3. VS Assembler.................................... 55

VII. Job Processing.................................... 57

1. Job Control Language (JCL).................................... 58
2. Job Card.................................... 59
3. Batch Job Standards and Procedures.................................... 60
4. Automated Production Scheduling System (APEX).................................... 60

VIII. File Management.................................... 62

1. Tape Management System (VALU-LIB).................................... 63
2. Disk Management System (DMS).................................... 69
3. Dataset Naming Conventions.................................... 71
4. Virtual Storage Access Method (VSAM).................................... 72
5. Dataset Security.................................... 74

APPENDIX A Procurement Process....................................
B Customer Support Contacts....................................
C Network Troubleshooting Guide....................................
D Table of Reference Manuals....................................
E OMIS Customer Guide Acronyms....................................
F OMIS Organization Chart....................................

Introduction

The Customers' Guide to Computer Services has been published by the Office of Management Information Systems (OMIS). OMIS is part of the Executive Office for Administration and Finance. Within OMIS, there are two major service bureaus: the Bureau of Systems Operations and the Bureau of Systems Policy and Planning. The Bureau of Systems Operations is divided further into the Bureau of Systems Services and the Bureau of Computer Services (an organizational chart can be found in Appendix F). These bureaus are jointly responsible for insuring optimum utilization, maintenance, and control of information processing systems established and owned by the Commonwealth.

This guide has been developed as a resource for our data processing customers. Aside from providing a description of the services, systems, and products offered, it also includes many of the standards and conventions observed in the OMIS environment. Sources for more detailed information are cited throughout the guide.

In an effort to keep you aware of current information, revised editions of the Customers' Guide to Computer Services will be issued twice during each fiscal year. Your comments and suggestions as to the quality of this guide are welcomed and appreciated. A comment form has been included on the last page for your convenience.

How Do I Become an OMIS Customer?

This section provides you with an overview of the computer services we offer, how to gain access to these services, how to use them, when to use them, and how to pay for them.

1. How Do I Become An OMIS Customer?
2. When Are Computer Systems Available?
3. How Is My Data Processed?
4. How Do I Receive Output?
5. What Data Storage and Back-up Services Are Available?
6. How Can I Protect My Data?
7. What Will These Computer Services Cost Me?

II. HOW DO I BECOME AN OMIS CUSTOMER?

1. Where Do I Start?

The Customer Service Department is your initial liaison with the OMIS Bureau of Computer Services (BCS) for data processing assistance. Since customers' needs vary, BCS offers different levels of support depending on your technical experience and interest. If you are considering using BCS you should first contact the Customer Service Department. A Customer Representative will be able to offer advice as to what software, system and access methods are suitable to meet your agency's requirements.

If you decide that BCS can meet your data processing requirements, you must provide a letter of authorization from your agency head before you arrange for such services. This letter must contain the names of the people you wish to have access to your system, the name and phone number of your representative who will be responsible for billing information, and the number of accounts under which you would like your agency to be billed.

Your customer representative will review BCS resources with you, including the Technical Hotline (See Section III). He or she will arrange for the issue of necessary passwords and identities that will allow you to access BCS computer resources

CUSTOMER SERVICE DEPARTMENT

CATEGORY	SERVICES	CONTACT
General Information	• answers questions about the Guide • provides information and referral • provides standards, procedures, and documentation	Customer Service Department One Ashburton Place, Rm. 801 Boston, Ma. 02108 727-9146
Prospective/ New Customers	• provides introductory information • identifies customers' needs • provides billing account numbers • assigns ID number	
Existing Customers New Services/ New Systems	• provides authorization to utilize additional resources or new products • provides new ID's • provides separate billing account numbers for additional services	

NOTE: The Customer Service Department is available during normal business hours (Monday - Friday, 8:45 AM - 5:00 PM).

II. HOW DO I BECOME AN OMIS CUSTOMER?

1.1 What Services Are Automatically Available?

By opening an OMIS account, you gain access to a variety of services. Without making additional requests, the following services are automatically available:

- authority to run jobs using any available software program products,
- documentation for languages, utilities, and application packages,
- technical assistance from the Technical Services Unit (TSU) and Applications Staff,
- job output from the Customer Service Desk,
- Information/Helplines for assistance and consultation.

1.2 What Other Services Can I Request?

In addition to the benefits listed above, you may request further services:

- use of additional interactive systems,
- online disk storage on public disk packs,
- use of a Remote Job Entry (RJE) terminal, or a
- permanent (leased) data communications line.

1.3 What Are My Obligations As An OMIS Customer?

You must provide our Customer Service Department with your initial letter of authorization. This letter will tell us the names of individuals authorized to use the system, the number of accounts you have, and whom we can contact in your agency for billing information.

It is also your responsibility to notify our Customer Service Department, in writing, when an employee is either terminated or transferred to another agency. This notification must inform us of the individual's name, the department from which the individual is being transferred, the ID of the individual, and the date on which the ID should be deleted. The letter must be signed by an authorized agency representative. We require this notification to ensure that you are not being billed for data processing facilities used by individuals that are no longer under your jurisdiction.

2. When Are Computer Systems Available?

The Bureau of Computer Services operates on the following schedule with the exception of Sundays and all Federal holidays.

TEST FACILITIES	AVAILABILITY
ADABAS Test Regions Batch Testing CICS Test Regions COM-PLETE SUNRPF TSO	8:00 a.m. to 6:30 a.m. (Mon - Fri) 8:00 a.m. to 5:00 p.m. (Sat. & Non-Federal Holidays - See 2.1.1)
PRODUCTION SYSTEMS	**AVAILABILITY**
ADABAS Production Regions	8:00 a.m. to 2:00 a.m.
Batch Production	6:00 p.m. to 6:30 a.m.
CICS Production Regions	8:00 a.m. to 5:30 p.m.
COM-PLETE	8:00 a.m to 10:00 p.m.
SUNRPF	8:00 a.m. to 6:00 a.m.

*Any deviation from the above schedule will be posted on-line. To access this bulletin, enter your TS058 ID, enter PDF2 and select the dataset: 'BSO.CHANGE.CNTL'. A list of dates will appear. Simply enter S to select the date in question.

2.1 How Can I Access BCS for Sunday or Holiday Operation?

On Sundays and all Federal holidays (See 2.1.1), the BCS Data Center is closed for purposes of computer maintenance and closed production jobs. However, we can grant access to systems on a special needs basis if we receive a written request 72 hours in advance. This request is required in order to operate a system at any time not specified above. An advance notice is necessary because we must plan and schedule personnel on an overtime basis.

2.1 How Can I Access BCS for Sunday or Holiday Operation (Continued)?

In your request, please state:

- which computer system and/or application will be needed,
- the length of time it will be in use,
- what test or production versions will be used,
- a phone number where we can reach you,
- the name(s) of person(s) who will be using the system.

Please address written requests for weekend operation to:

Bob Ragucci, Manager
Computer Operations
1 Ashburton Place, Rm. 801
Boston, Ma. 02108
(617) 727-1594

2.1.1 Federal Holidays

The Data Center will be closed on the following holidays:

New Year's Day
Memorial Day
July 4
Labor Day
Thanksgiving Day
Christmas Day

3. How Is Data Processing Accomplished?

The Customer Service Department is the principal point of customer contact for established, routine processing services. Within the Data Control section, a controller is assigned to each of the major batch-processed systems and is responsibile for the set-up, running and verification of the jobs within each system.

The Distribution Center will deal with the distribution of all printed output, whether from an 'on-line' or 'batch' job. In addition, courier services are available within the McCormack Building, within Boston and to and from the Records Management Center.

The Customer Service Desk will provide information about job status, turnaround times and the courier schedules. You may also drop off jobs for batch processing and pick up printed output at this desk.

3. How is Data Processing Accomplished (Continued)?

For further information, please contact:

Customer Service Department
1 Ashburton Place, Room 801
Boston, Ma. 02108
(617) 727-9146

3.1 Batch (Background) Processing and Interactive (Foreground) Processing

Data processing is generally accomplished in one of two modes: batch (background) processing or interactive (foreground) processing. In batch processing, the computer performs a series of pre-set operations as a single job. Usually the results of the job cannot be seen until the job (or job step) is completed. It is called background processing because the intermediate steps occur within the computer's job management system; the customer sees only the end result. The foreground is the environment in which programs are interactive and processing time is shared among terminal users.

3.2 The Mainframe

The mainframe is a large computer that is capable of processing large amounts of data in a short period of time. It is the heart of the teleprocessing network. OMIS has two large mainframe computers, an IBM 3033 and an Amdahl 5860 located at the Bureau of Computer Services. They perform both batch and interactive processing.

3.3 What Equipment Is Supported and How Can It Be Obtained?

3.3.1 Supported Equipment

Terminals

OMIS has established blanket contracts with three vendors - ITT Courier, Lee Data, and IBM - for IBM equivalent terminals. The contracts also include controllers and printers. Hardware information may be obtained directly from the Bureau of Computer Services (BCS). Orders must be placed through the Bureau of Systems Policy and Planning (BSPP), using the AF-29 procedure outlined in Appendix A. Because these blanket contracts were established competitively, agencies may order equipment from them without initiating competitive procurements of their own. The contracts provide for purchase, lease, and rental. Prices may be obtained from BSPP.

3.3.1 Supported Equipment (Continued)

Modems

OMIS has established a blanket contract with one vendor - Paradyne Corporation - for data communications equipment, including acoustic compilers, modems, digital service units, multiplexers, and diagnostic control equipment. Hardware information may be obtained from BCS or the vendor.

Orders must be placed through BSPP, using the procurement procedure outlined in Appendix A. Prices may be obtained from BSPP. Note: Agencies may not order modems for the BCS network directly from the vendor. All orders must go through BSPP. BSPP will forward all approved orders for the BCS network to Technical Services Unit (TSU). TSU will then forward the orders to Paradyne.

3.3.2 Procurement Process

With few exceptions, executive branch agencies may not expend funds, legally, for data or word processing goods and services (hardware, software, services, or consultants) without prior approval by the Commissioner of Administration. This applies whether the funds are State or Federal, appropriated or not. To get the Commissioner's approval, agencies must follow the procurement procedure outlined in Appendix A. As noted above, several of the steps may be skipped if OMIS has established a blanket contract, as is the case for terminals, printers, and data communications equipment.

Procurement Assistance may be obtained from:

Bureau of Systems Policy and Planning
One Ashburton Place, Rm. 1601
Boston, Ma. 02108
(617) 727-2160

4. How Do I Receive Output?

When the Technical Services Unit of BCS hooks up your terminal and you have learned the sign-on procedure, you are ready to access the programs necessary for you to do work.

4. How Do I Receive Output (Continued)?

TSO, CICS and COM-PLETE are commonly used teleprocessing monitors that will allow you to interact with the mainframe. An overview of all the software products available to you is presented in the Product Selection Guide, Section IV.

Your request, once processed by the mainframe, whether it requires batch or interactive (online) processing, will be returned to you in one of three ways. It will either appear directly on your terminal screen, it will be printed at a remote printer in your area, or the printout can be picked up at the Customer Service Desk, Room 801 of the Bureau of Computer Services between the hours of 8:00 a.m. and 5:00 p.m. A limited courier service is also available. For further information on times and locations contact:

Customer Service Department
1 Ashburton Place, Rm. 801
Boston, Ma. 02108
(617) 727-9146

5. What Data Storage and Backup Services Are Available?

The OMIS mainframe contains a variety of direct access storage devices (DASD) and tape units to support most normal processing requirements. All tapes are standard label and are assigned and monitored by a tape management system (VALU-LIB) utilizing preassigned six-digit volume serial numbers. Tape densities supported are 6250, 1600 and 800 bytes per inch (BPI). Specific information concerning the tape management system and related procedures is contained in Section VIII.

5.1 Storing Datasets

Some customers with extraordinary data processing requirements store their data on tape. Most, however, use public disk packs. By using the public disk pack system you can access your data anytime the computer is in operation.

DASD storage is controlled by the Disk Management System (DMS/OS). DMS/OS controls both the total amount of DASD space a customer may leave allocated and the length of time an inactive dataset may be left on the storage packs. Section VIII gives a more detailed explanation of dataset management policies and procedures.

5.2 Public Storage/Routine-Backup

Datasets are classified into 5 categories: production, permanent, test, TSO, and temporary. Production and permanent datasets are backed up weekly. Test and TSO datasets are backed up (copied) daily. Temporary datasets only exist until a job's completion and therefore, no backup occurs. If these backup procedures do not meet your needs, customers can backup their own datasets by using the IEBGENER utility. For further information regarding direct access storage devices (DASD), refer to Section VIII.

5.3 Off-Site Storage for Disaster Recovery

At the request of the customer, magnetic tape files will be picked up at the Data Center, Rm. 801, and stored offsite. A bonded courier service is provided and files are picked up and rotated according to a schedule established between the customer and the Manager of Computer Operations.

6. How Can I Protect My Data?

OMIS offers an extensive range of security features. Elements of the data security environment include:

- submitter code (customer-ID) validation at job submission or at logon
- account number (charge code, project number) validation
- optional requirement for a batch password on all batch jobs using a particular submitter code and accessing protected datasets.
- owners' specification of those who may access their datasets
- dataset access authority (e.g., read only, read/write, read/write/scratch) regulated as specified by owner of the data
- a feature which allows a group leader to link a group of customers with a group of datasets and to specify access once for the entire group, rather than individually for each customer.
- dataset protection that can be made to occur simultaneously with the creation of the dataset
- requirement that each customer give a password at time-sharing logon
- an access authority specified for a dataset by its owner that allows the dataset to be read by anyone but is fully protected from all other access
- an off-site automated tape storage vault

6. How Can I Protect My Data (Continued)?

There are many other features in OMIS data security from procedural requirements to intricate environmental sensors, that provide safe data storage and processing.

The OMIS Resource Access Control Facility (RACF), a subset of OMIS data security, ensures data privacy and integrity. RACF is predominantly a customer-driven system consisting of dataset security and terminal sign on security. For more information, see Section VIII.

7. What Will These Computer Services Cost Me?

7.1 Monthly Invoice

The CHARGEBACK system is designed to encourage OMIS efficiency and accountability to our customers. All new customers and those who use substantial new services are billed under CHARGEBACK. Each month customers will receive an itemized bill listing services and charges.

For a listing of the current rates, contact:

Customer Service Department
1 Ashburton Place, Rm. 801
Boston, Ma. 02108
(617) 727-9146

For billing inquiries, contact:

Lou Angeloni, Assistant Director of Administration for
Budget and Administrative Services
Office of Administration
1 Ashburton Place, Rm. 411
Boston, Ma. 02108
(617) 727-3682

7.1.1 The Bureau of Computer Services will be charging for:

- Initial installation fee/connection of communication lines
- Tape Storage
- Work Unit
  - CPU time
  - READS and WRITES to disk and tape
  - Region size
- Number of pages printed
- DASD space
- Tape mounts
- Printing of special forms (i.e. checks)

7.1.2 The Bureau of System Services will be charging for:

- Application Development
- Application Maintenance

7.1.3 The Records Management Center will be charging for:

- Key Entry
- Microfilming of Documents
- Record Retrieval
- Clerical Services

Data Processing Services

OMIS offers a variety of data processing services to all of its customers. These services range from telephone assistance for system difficulties to Computer Based Training (CBT) courses. The OMIS library is equipped to keep you informed about the data processing industry from product manuals to informational periodicals. The Records Management Center is a service center located off-site in Westboro. If you are interested in seeing the OMIS Data Center, tours are scheduled regularly.

1. Customer Assistance
2. Records Management Center
3. Specialized Education
4. Tours
5. OMIS Library
6. Announcements

III. DATA PROCESSING SERVICES

1. Customer Assistance

OMIS has a staff of technical support representatives, applications analysts, and operational personnel to help you. These people are available to consult with you and help troubleshoot when you have problems. Your Customer Service Department Representative can direct you to your contact person.

1.1 Telephone Assistance

Problems encountered on a system should first be addressed by an agency's own programming staff. If the difficulty remains the agency programmer can contact either the Systems Services HELPLINE or the specific application's assistance line (i.e. PMIS, MIDAS). If your agency does not have a programming staff but is using a BCS system, the OMIS Information Center has a helpline available for general assistance*. All of the assistance lines are available during regular business hours (Monday - Friday, 8:45 AM - 5:00 PM).

CATEGORY	CONTACT	TELEPHONE
Agencies with programmers.	TECHNICAL HELPLINE	727-3449
	PMIS HELPLINE	727-7641
	MIDAS HOTLINE	727-7487
Agencies without programmers.*	INFORMATION CENTER HELPLINE	727-5639
	APPLICATION SUPPORT UNIT	727-6220
General Information in regard to the Guide.	CUSTOMER SERVICE DEPARTMENT	727-9146
Network Control for terminal availability.	NETWORK CONTROL UNIT (See Appendix C for Network Troubleshooting Guide)	727-0710

*NOTE: Agencies who do not have their own programmers but who are using BCS Systems should contact the OMIS programmers who maintain their system either in the Application Support Group or the Information Center.

2. Records Management Center (RMC)

The Records Management Center, located in Westboro, Massachusetts, is a resource facility offering data entry, microfilming, record storage and retrieval, computer programming, systems analysis, data processing, and clerical services.

2.1 RMC Equipment and Resources

- 42 GCS 2100 Data Entry Terminals and 2 Disc-Driven Consoles available for two-shift operation
- 3 Univac Key Punch/Verify Machines for two-shift operation
- 1 CPT 8100 Word Processor featuring rotary IV printer and mathpack capability
- 1 Mohawk Data Sciences (MDS) 2400 Computer with four peripheral magnetic tape units, and a high speed printer
- Bell and Howell Microfiche readers
- 4-3M Microfiche readers and 2-3M Microfiche reader/printers
- More than 20 clerical employees equipped with modern office equipment
- Business analysis consulting staff
- Over 35,000 square feet of record storage capacity

2.2 Using RMC

If you need RMC services, your OMIS Customer Representative (See Section I) will see to it that you are assigned an Account Representative at RMC to help you set up an account. You may also contact RMC directly:

William J. Mancini, Director
Records Management Center
Post Office Box 567
Westboro, Mass. 01581-0567

Boston Telephone	(617) 727-3681
Westboro Telephone	(617) 366-1953

3. Specialized Education

3.1 Interactive Instructional System (IIS)/Computer-Based Training

IIS is an IBM software package for computer-based training. Enrolled students may progress at their own rate through this training program by keying in responses and following the logical flow of the courses.

Below is a list of courses currently available:

CLEVEL - FUNDAMENTALS OF CICS/VS COMMAND LEVEL PROGRAMMING
DCUSER* - INTRODUCTION TO DATA COMMUNICATIONS
DPSKIL* - DATA PROCESSING SKILLS FOR LESS EXPERIENCED CUSTOMERS
DPUSER* - INTRODUCTION TO DATA PROCESSING
FOCUSE* - USING FOCUS
ICUSER* - INTRODUCTION TO THE INFORMATION CENTER
IISINT - INTRODUCTION TO IIS
ND3270* - IBM 3276/3278 OPERATOR TRAINING
FULUSE* - SAS FULL SCREEN PRODUCT
SMUSER* - USING SORT/MERGE UTILITIES
SPFUSE* - ISPF FOR LESS EXPERIENCED CUSTOMERS
STUSER* - USING SAS
VSJCL * - LEARNING TO CODE OS/VS JCL

*Workbooks are available in OMIS Library.

3.1.1 Registration for Courses

You may request to register* for an IIS Course in one of two ways. Either contact:

Course Administrator
Training and Resource Unit (TRU)
1 Ashburton Place, Rm. 1619
Boston, Ma. 02108
(617) 727-8333

If you are currently without a valid USER ID, the Course Administrator can assist you in obtaining one.

OR: Sit down at your terminal

. Type in TS033, Hit Enter Key
PROMPT: ENTER USERID
. Type in your ID, Hit Enter Key
PROMPT: ENTER CURRENT PASSWORD
. Type in your password, Hit Enter Key
PROMPT: READY
. Type in REGISTER, Hit Enter Key

All terminal requests will be collected each day. Within one week you will be notified of the status of your registration.

*NOTE: This is a request to register only. You will be notified when actual registration occurs.

3.1.2 Logging On

The OMIS/BCS network is in the process of implementing a new welcome screen. Some agencies may already have the new welcome message, others will be converted by the end of fiscal year '85. When you first sit down at your BCS terminal, your welcome screen will either read:

```
WELCOME TO BSO DATA COMMUNICATIONS NETWORK.  ANY
PROBLEMS OR QUESTIONS REGARDING THE NETWORK, PLEASE
CALL NETWORK CONTROL CENTER (617) 727-0710 or 0711.
```

OR:

```
WELCOME TO THE OMIS/BCS DATA COMMUNICATION NETWORK

                  B   C   S

ENTER OPTION FOR YOUR APPLICATION ON THE BOTTOM LINE


A = TSO58          E = COMPLETE          I = MIPSP1
B = TSO33          F = COMPLET1          J = MIPSP2
D = CICS1          G = SUNRPF33          K = MIPSPP
H = CICS99         H = SUNRPF58          L = IMS

PF12 = DARKEN INPUT AREA
```

. Type in TSO33, Hit Enter Key
OR Type in B (for the new screen), Hit Enter Key
PROMPT: ENTER USERID
. Type in your TSO ID, Hit Enter Key
PROMPT: ENTER CURRENT PASSWORD
. Type in your password
PROMPT: READY
. Type in COURSES, Hit Enter Key (OPTIONAL)
PROMPT: Listing of Courses
. Type in IIS, Hit Enter Key
PROMPT: TYPE COURSE NAME
. Type in Course name, Hit Enter Key

NOTE: If you type in a course for which you are not registered, the screen will read "STUDENT NOT REGISTERED."

3.1.2 Logging On (Continued)

Quick facts about signals on your screen:

- Notice the small time clock in the lower left-hand corner of your screen. When this appears, the computer is asking you to wait until it can respond to you.
- The cursor, which first appears on the screen right under your welcome message, indicates that it's your turn to give the computer information.
- A small stick figure in the lower left-hand corner of your screen indicates too much information has been entered at once and you must depress the RESET key to resume your course.
- When logging off and three asterisks appear in the lower, left-hand corner, hit the ENTER key and then logoff.

3.1.3 Logging Off

Logging off is a two-step procedure. Recall that when logging on, you logged on to TSO and then signed on to IIS; when logging off you must therefore sign off from IIS and then logoff from TSO.

- Hit the ALT and CLEAR keys at the same time
- Type in SIGN OFF, Hit Enter Key

PROMPT: Blank Screen with 3 asterisks in lower left-hand corner

- Hit Enter Key

PROMPT: READY

- Type in LOGOFF

You should have now returned to your original welcome screen.

3.1.4 Technical Assistance on IIS

Any questions requiring technical assistance should be addressed to:

Information Center
1 Ashburton Place, Rm. 1619
Boston, Ma. 02108
(617) 727-5639

4. Tours

Tours of the computer processing, storage, and printing area are held twice a week. Please call to arrange for an appointment.

Customer Service Department
One Ashburton Place, Rm. 801
Boston, Ma. 02108
(617) 727-9146

5. OMIS Library

As you read about OMIS' Computer Services in this guide, sources of additional information are usually cited. Where the information source is an IBM document, another software vendor, or a publishing house, we have included the document number or reference so you can get more information on the source from the OMIS Library. If you prefer to purchase a copy, the Librarian can tell you the procedure to follow. A complete listing of all documents referenced within this guide can be found in Appendix D.

Robin Fenn Elbot, Librarian
OMIS Library
1 Ashburton Place, Rm. 1619
Boston, Ma. 02108
(617) 727-8333 Ext. 24

6. Announcements

OMIS regularly distributes information on new and updated program products and other relevant news. Announcements of system availability and other information our customers must have immediately are attached to the system printer output. They appear as bulletins and are displayed on the terminal screens of our interactive customers at logon.

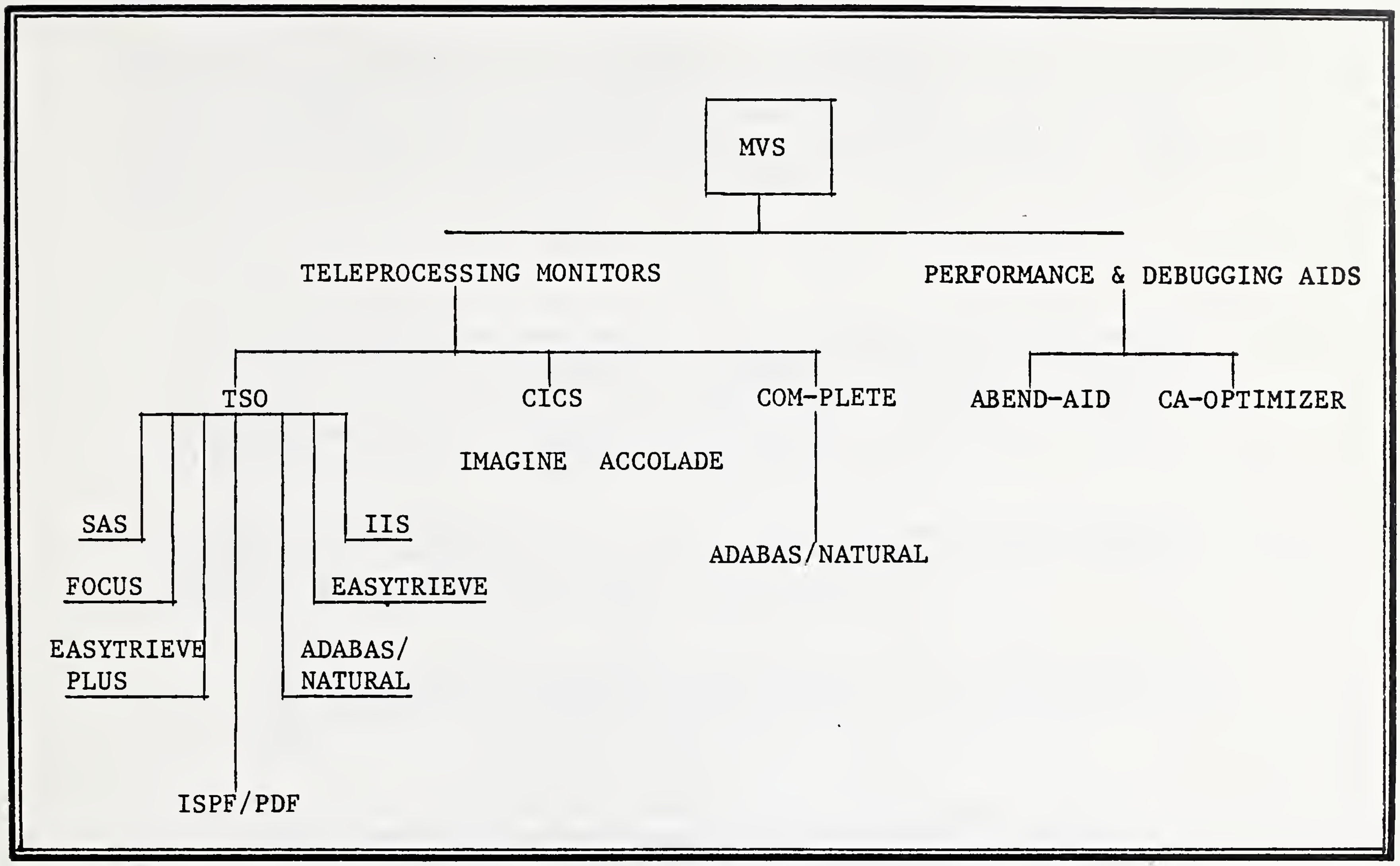
Product Selection Guide

A computer program is a series of instructions that specifies what operations are to be performed and the sequence in which they will be carried out. When we speak of "software" we are referring to these computer programs. A "software package" is a purchased program.

This section covers a variety of products available for your use. It is basically a features description to help you choose the package that meets your data processing needs.

1. ABEND-AID
2. ACCOLADE
3. ADABAS
4. CA-OPTIMIZER
5. CICS
6. COM-PLETE
7. EASYTRIEVE
8. EASYTRIEVE PLUS
9. FOCUS
10. IMAGINE
11. ISPF/PDF
12. NATURAL
13. SAS
14. TSO

IV. PRODUCT SELECTION GUIDE



The above diagram provides you with the products OMIS has available for your use as well as the systems you must access to use these products. MVS (Multiple Virtual Storage) controls and manages the overall operation of the computer. It is a collection of programs that interfaces between the application or customer program and the computer hardware. There are three teleprocessing monitors that operate under the MVS system. Teleprocessing monitors oversee the interaction between transmission lines, that send data from one location to another, and the computer system. Performance and debugging aids act as assistance facilities for problems encountered with a program in the MVS environment.

IV. PRODUCT SELECTION GUIDE

1. ABEND-AID

ABEND-AID is a software system designed specifically to solve the problem of program abends (abnormal endings) and to eliminate the memory dumps they produce. ABEND-AID is a sophisticated debugging tool in the form of a comprehensive analysis system containing more than 300 modules. ABEND-AID examines each abend and extracts the information needed to solve the problem.

1.1 Using ABEND-AID

The only requirement necessary to receive ABEND-AID's assistance is the presence of a SYSUDUMP or SYSABEND DD statement in your jobstream. You may also use a SYSMDUMP DD statement, but in this case you must add an ABENDAID DD statement to your JCL so that ABEND-AID will have a place to print its output.

ABEND-AID's output is structured so that the most useful data is found at the beginning of a section and the supporting detailed data follows. Use the output in top down order.

- Look at the completion code at the top of the first page and the diagnostic information at the top of the second page. In most cases, these two areas will provide you with the solution.

- If you need to know the location in your program where the abend occurred, use the next sequential instruction section on the first page. ABEND-AID has precalculated the displacement in your program listing where the abend occurred. Use the displacement provided to look at your listing and locate the failing statement. The date of the compilation is provided by ABEND-AID so that you can verify your listing.

- Sometimes ABEND-AID will provide you with the displacement to your last I/O operation or call. This displacement will allow you to locate a second statement in your program. This can be useful in solving logic problems because it gives you a clue as to what you were doing before the abend occurred.

- If you need to locate data items in your program, consult the third page of ABEND-AID output. A printed representation of your data areas is provided there. The format varies by language.

1.1 Using ABEND-AID (Continued)

- COBOL - ABEND-AID prints the WORKING-STORAGE SECTION of your program in a format that matches the DMAP produced by the COBOL compiler. To find an item, locate the data name in the map at the end of the compile (or to the right side of the WORKING-STORAGE variable in question if you have an optimizer) and extract the BL cell number, displacement, and length. Look at the ABEND-AID output and find the area referenced by the BL cell number in question. Locate the displacement in the leftmost column and you have the data item in question.

- ASSEMBLER - ABEND-AID prints the entire csect (control section - basic whole unit of code) with the leftmost addresses set to match the offsets in your assembly listing.

- FORTRAN - ABEND-AID is able to analyze all U240 abends. The storage is dumped so that the variables will match the map produced by FORTRAN.

- ABEND-AID prints information on each open file. The number of EXCP's corresponds roughly to the number of blocks read or written. The current and previous records for each file are also displayed.

  - If the problem could not be diagnosed by ABEND-AID the normal IBM dump follows.

1.2 Assistance

If you are unfamiliar with ABEND-AID output, you should print a copy of ABEND-AID HELP. ABEND-AID is distributed with this feature activated for all new users of the product. The HELP feature is enabled on a system-wide basis by the GLOBAL macro which is part of the ABEND-AID installation procedure. After a few weeks, it is a simple matter to change the option so that HELP is no longer automatically produced at any time by including the following DD statement in the abending step:

```
//ABNLHELP  DD  DUMMY
```

ABEND-AID output is nearly self-explanatory so that programmers and other data processing personnel can easily use the product without formal training or a large, complex manual.

1.3 Reference

ABEND-AID Reference Manual OS Release 4, October 1983.
For information regarding the above reference, contact the OMIS Librarian.

1.4 Assistance

For technical assistance, address inquiries to:

TECHNICAL HELPLINE
(617) 727-3449

2. Using ACCOLADE

ACCOLADE is a tool that is used for designing and developing online COBOL applications under CICS, and for running and maintaining those programs in a production environment.

2.1 Using ACCOLADE

- Enables controlled design of systems, thereby eliminating the problems that arise when a system is designed by several different people (each following his/her own methodology).
- Insulates the programmer from the complex requirements of CICS while permitting all the capabilities of the system.
- Standardizes many aspects of application development; decreasing the time needed to create an operative system and increasing the productivity of each systems analyst and programmer.
- Provides automatically for the standard features of online applications that are vital to efficiency and security, but that often go unimplemented because of time constraints. Such features include: security protection, standardized keyboard functions, and naming conventions.
- It facilitates effective communication between system designers and less experienced customers during the design phase.

2.2 References

ACCOLADE

VOLUME I
Concepts and Capabilities
User's Guide
Maskeraid

VOLUME II
Error Messages
Skeleton Programmer's Guide

For information regarding the above references, contact the OMIS Librarian.

2.3 Assistance

For technical assistance, contact:

TECHNICAL HELPLINE
(617) 727-3449

3. ADABAS - The Adaptable DAta BAse System (Version SM08)

ADABAS is a data base management system. It provides customers with an easy-to-use, efficient, flexible, and comprehensive capability for meeting management requirements in diverse data processing environments. It allows the customer to solve current data processing problems with a minimum of training and efficient use of computing resources. As new requirements develop, an ADABAS data base may evolve in scope and complexity, without requiring the redesign of the data base or the reprogramming of existing systems.

3.1 Using ADABAS

ADABAS architecture provides:

- Data Compression for:
  - efficient mass storage utilization
  - more information per I/O
- Data Format Conversion for:
  - flexibility in userviews
  - data/program independence
- Separation of Data and Structure for:
  - relational representation
  - adaptability
- Address Converter for:
  - update efficiency
  - automatic reorganization

3.1 Using ADABAS (Continued)

- Inverted Lists for:
  - multi-key access
  - general inquiry capability
- Network of Files for:
  - relationships based on data content
  - bi-directional relationships
- Random Access for:
  - inquiry efficiency
  - update capability
- Logical and Physical Sequential Access for:
  - efficient bulk access
  - ordered processing
- Update of the Associator for:
  - integrity of data base representation
  - complete transparency to the customer

3.2 ADABAS Data Base Administration Facilities

ADABAS Data Base Administration Facilities provide:

- Dictionary for:
  - control of definitions
  - ease of data integration
- Dictionary Reports for:
  - documentation
  - control of change
- Loader Utility for:
  - efficient file definition and loading
  - ease of system use
- Utilities to Modify the Data Base for:
  - adaptability as requirements change and expand
  - change without programming
- Report Utility for:
  - documentation
  - status monitoring
- Data Protection for:
  - automatic data base integrity
  - recovery in case of any failure or error
- Data Security for:
  - prevention of unauthorized access
  - multiple levels of check

3.3 References

ADABAS Introduction Manual	ADA-410-000
ADABAS Messages and Codes Manual	ADA-411-060

For information regarding the above references, contact the OMIS Librarian.

3.4 Assistance

For further information and a copy of the most recent technical procedures, contact:

Jim Buckner, Director
Data Base Administration
1 Ashburton Place, Rm. 811
Boston, Ma. 02108
(617) 727-5852

4. CA-Optimizer/OPTIMIZER III

CA-Optimizer also known as OPTIMIZER III, is a programmer productivity and COBOL optimization product for the OS and OS/VS environments. CA-Optimizer is designed specifically to automatically optimize COBOL programs and to assist in the testing, debugging, fine tuning and maintenance efforts associated with COBOL programming. CA-Optimizer maximizes programming productivity, improves program reliability and enhances program performance.

4.1 Using CA-Optimizer

To maximize programming productivity, CA-Optimizer:

- Expands programming capacity
- Reduces program development time
- Speeds program debugging

4.2 Reliability

To improve program reliability, CA-Optimizer:

- Ensures adequate testing
- Highlights hidden logic problems
- Reduces production errors and missed production schedules

4.3 Performance

To enhance program performance, OPTIMIZER III:

- Identifies performance bottlenecks
- Reduces test time

4.4 Operating Environment

OPTIMIZER III works with any OS/ANS or OS/VS COBOL compiler. No system changes are required.

4.5 Coding Rules

4.5.1 Compile-Time Parameters

- Specified via PARM in EXEC statement
- Can be freely mixed with ANS or VS COBOL Compiler options

4.5.2 Execution-Time and Report-Time Parameters

- Specified as job statement input via:

```
//CPXMOPTS  DD *
```

- Use columns 1-72 and delimit parameters with spaces
- Sublists are enclosed by parentheses; commas separate items within these parentheses
- If the same parameter is repeated, the last one specified is used
- Multiple parameters are allowed per statement; a parameter cannot be split between two statements
- Comment statements are denoted by an asterisk(*) in column 1
- When specifying a parameter that is followed by options, the option must be specified (Example: if SOURCEMAP is specified, it must be followed by either a program name or ALL).

4.6 Reference

CA-OPTIMIZER: OS Technical Support Manual (Release 4.2)

For information regarding the above reference, contact the OMIS Librarian.

4.7 Assistance

For technical assistance, contact:

TECHNICAL HELPLINE
(617) 727-3449

5. Customer Information Control System - CICS (Version 1.5.1)

CICS is a general purpose data communications control system that can be tailored to the needs of most online applications. CICS controls the overall flow of the online system and supplies an interface between application programs and the operating system. CICS provides management of physical resources such as terminals and files.

5.1 Using CICS

In general, CICS is recommended for long-term, large-scale use by groups of customers who are entering common information into a common file. A few applications that utilize CICS include:

- Personnel
- Budget
- Project Control
- Insurance Benefit Management

5.2 Supported Languages

CICS supports two application languages: Assembler and COBOL. In addition, applications may be implemented for CICS using the Development Management System (DMS) or Basic Mapping System (BMS).

5.3 Commands

A command-level application programming interface allows programmers to request CICS services through use of special commands. CICS commands are statements included at specific points in application programs; the format of the commands is similar to the statements of the language being used in the program.

5.4 Logon Procedures

- Type in the appropriate code for the system which you have authority to access (i.e. MIPSP1, MIPSP2, etc.), Hit Enter
- Type in transaction code (i.e. REDY01, DB01), Hit Enter

Please note that all transactions are protected either through passwords, terminal ID's, or the CICS security sign-on. Contact the application programmer assigned to your agency for security clearance.

5.5 References

CICS/VS General Information	GC33-0155-1
CICS - Development Management System (DMS)	GH20-2195-0
CICS/VS (Version 1, Release 6), Application Programmer's Reference Manual	SC33-0077-2

For information regarding the above references, contact the OMIS Librarian.

5.6 Assistance

For technical assistance, contact:

Karen Neville, CICS Systems Administrator
Technical Service Unit
1 Ashburton Place, Rm. 811
Boston, Ma. 02108
(617) 727-5852

6. COM-PLETE

COM-PLETE is a teleprocessing system developed for use with the data base management system, ADABAS (See Section IV, Paragraph 3). It combines software for teleprocessing functions into a single software package using a single network of terminals.

6.1 Using COM-PLETE

A major design objective is to insulate the less experienced customer from the more technical details. The range of facilities within COM-PLETE is independent of the operating system and terminal device. This eliminates any conversion considerations when undertaking a hardware or operating system upgrade. Programmers require no special training beyond the skills needed for batch programming.

6.2 Reliability

COM-PLETE eliminates the major reason for teleprocessing system failures by providing absolute storage protection between COM-PLETE and the application program. This protection is accomplished by utilizing the 360/370 hardware storage protection feature.

6.3 Efficiency

The entire range of COM-PLETE facilities is supported in a single partition or region within the system. The minimal core requirement of 140K easily handles networks of 40/50 terminals involving moderate activity. Larger networks with high activity are also supported with a quick response time.

6.4 Using COM-PLETE

The primary objective of COM-PLETE is to provide facilities for all teleprocessing needs. COM-PLETE supports six major processing requirements:

- Program development
- Data entry and inquiry
- Remote job entry and output
- Batch processing
- Computer operations and systems maintenance
- Data base and file management

6.5 References

COM-PLETE	Introduction COM-430-001
COM-PLETE	COM-PASS Reference Manual COM-430-090
COM-PLETE	User Utilities Manual COM-430-030

For information regarding the above references, contact the OMIS Librarian.

6.6 Technical Assistance

Jim Buckner, Director
Data Base Administration
1 Ashburton Place, Rm. 811
Boston, Ma. 02108
(617) 727-5852

7. EASYTRIEVE (Version 9.0)

EASYTRIEVE is a versatile, easy-to-use information retrieval and data management system. It can be used in place of developing reporting programs in high level languages. Advantages of EASYTRIEVE over high level language programs include:

- Lower development costs
- Faster development time
- Ease of modification
- Execution speed and memory requirements that compare favorably with high-level language programs

7.1 Using EASYTRIEVE

FILE INPUT

- Extracts information from any storage facility
- Files may be sequential, indexed sequential, or VSAM
- Record formats may be fixed, variable, undefined, or spanned
- Data may be in alpha, numeric, packed, packed-unsigned, or binary format

RECORD SELECTION

- Searches files and performs logical data selection based on input or calculations
- Edits and updates files
- Merges unlimited numbers of files, based on customer-desired selection criteria
- Deletes, adds, or reformats specified records while matching record fields from a secondary file

OPERATIONS

- Performs extensive computations through customer logic; may be percentages, averages, arithmetics, or any customer-specified calculations
- Sorts up to ten keys
- Provides nine control break levels for subtotals plus final totals
- Automatically formats output with all totals calculated internally
- Performs special tests such as end of file, blanks, sort status, test under mask, numeric and alpha tests, matched files and system data tests
- Calls customer programs and subroutines and integrates them into the job

OUTPUT

- Provides printed, punched, and/or file output
- Provides any number of output files, including VSAM
- Presents up to six reports on one pass of the input file
- Automatically formats and centers reports with many alternates
- Provides automatic or alternate column headings
- Provides one-, two-, three- or four-across mailing labels with one command
- Provides reports on summary output files
- Provides multiple reports and files from single pass of input
- Allows special customer-formatted print command for W-2 forms, audit confirmations, any preprinted forms, etc.
- Reads and writes unlimited number of VSAM files

7.1 Using EASYTRIEVE (Continued)

MACRO PROCESSOR

- A built-in system that can be used to call entire sets of job code with a single command. Using the macro processor to store file definitions is one way of establishing a data dictionary within a shop

7.3 Sample EASYTRIEVE Cataloged Procedure

The procedure EASYTREV is used to execute the EASYTRIEVE program. For a description of the DD names used by EASYTRIEVE, refer to Section 15, Job Control, in the EASYTRIEVE Reference Manual.

The following items present sample JCL statements for executing this procedure:

```
//STEP01 EXEC EASYTREV
//ET.FILEA DD...input file description
//ET.FILEB DD UNIT=SYSDA,SPACE=(TRK,(100,20))
//**
/*
```

7.4 Reference

EASYTRIEVE Reference Manual E9.0-8209

For information regarding the above reference, contact the OMIS Librarian.

7.5 Technical Assistance

For further information, address inquiries to:

TECHNICAL HELPLINE
(617) 727-3449

8. EASYTRIEVE PLUS (formerly known as PRO/grammer)

EASYTRIEVE PLUS is both an information retrieval and application development system designed to simplify computer programming. It uses English-like syntax and declarative statements to provide less experienced customers with the tools needed to produce comprehensive reports. It also provides a more experienced data processor with the capabilities to perform complex programming tasks.

8.1 Using EASYTRIEVE PLUS

The primary purpose of an information retrieval and application development system is to make the job of programming faster and more effective and to produce results in considerably less computer run time.

EASYTRIEVE PLUS:

- Catalogs programs into executable form.
- Batches separate logical activities into a system flow within one program
- Passes files from one activity to another for access in subsequent activities.
- Tailors the environment of a program through a PARM statement.

8.2 File Access

EASYTRIEVE PLUS' file access features provide all standard retrieval system capabilities, plus the following:

- Coordinates synchronized file processing (based on keys) of an unlimited number of files, including matched conditions and duplicate checking.
- Links just the fields you need for synchronized file processing.
- Tests for file availability and current record count.
- Prints statistics on files used including input/output information, number of records processed, and attributes of each file.
- Provides in-core binary search of external or instream table files.

8.3 Logic Process

The purpose of any information retrieval and application development system is to provide complete conditional logic. In addition to this logic, EASYTRIEVE PLUS:

- Provides powerful calculation capabilities, including bit manipulations.
- Performs special tests useful in editing, including alphabetic, numeric, spaces, zero, and test under mask.
- Allows string manipulation.
- Includes special one-time procedures for start of processing and finish of processing.

8.4 References

EASYTRIEVE PLUS Application Guide	PLA04.0-8401
EASYTRIEVE PLUS Reference Manual	PLR04.0-8401

For information regarding the above reference, contact the OMIS Librarian.

8.5 Assistance

For technical assistance, contact:

TECHNICAL HELPLINE
(617) 727-3449

9. FOCUS (Version 4.5)

Focus is a Data Base Management System and Information Control System. It is used to redefine the way computer applications are developed. Replacing conventional programming with non-procedural English sentences, FOCUS is used to build complete 3270 menu-driven applications, yet it is easy enough for non-technical customers to perform their own ad hoc queries and reports.

9.1 Using Focus

Using FOCUS requires a working knowledge of TSO and SPF. Logging on to FOCUS is application-dependent. The Information Center develops and supports systems where a customer will have a more direct link to his or her particular FOCUS application.

9.2 References

1983 FOCUS Users Manual	DN 40001.0883
FOCUS Query Language Primer	DN 40003.0683

For information regarding the above references, contact the OMIS Librarian.

9.3 Technical Assistance

For technical assistance contact:

Information Center
1 Ashburton Place, Rm. 1619
Boston, MA 02108
(617) 727-5639

10. IMAGINE (Version 1.1)

IMAGINE is a query and reporting package. Its menu-driven nature means that there is no programming language to learn and no code to debug. It provides easy facilities for getting information out fast, as well as sophisticated features for manipulating data and producing complex reports.

10.1 IMAGINE

EASE OF USE

- Menu Driven
- No Programming
- No Debugging
- On-line Help Documentation
- Executes Under CICS

POWER AND CAPABILITY

- Transparent access to Multiple Files
- Data Structure Independence with no need to reformat or copy existing files
- Unlimited selection criteria
- Unlimited sorting criteria
- Automatic summary statistics

10.2 Using IMAGINE (Continued)

FORMAT FLEXIBILITY

- System Heading and format defaults
- Overwrite defaults
- Control Heading content and location
- Pagebreaking
- Matrix formatting

REPORTING FLEXIBILITY

- Online or batch generation
- Estimates Resource Requirements before generation
- Prints multiple copies of the report
- Generates report but suppresses printing until requested
- Schedules reports for automatic generation at set intervals
- Routes reports throughout CICS printer network

10.2 References

IMAGINE: A User's Introduction

For information regarding the above reference, contact the OMIS Librarian.

10.3 Assistance

For technical assistance contact:

TECHNICAL HELPLINE
(617) 727-3449

11. ISPF/PDF

The Interactive Structured Productivity Facility (ISPF) is a program development and data entry tool that operates under TSO (Paragraph 14). It is often used interchangeably with both SPF and PDF. The Structured Programming Facility (SPF) is the original term used to define this product, but ISPF is the updated version. The Program Development Facility (PDF) is used as a component of ISPF. This tool displays a full screen of data and allows you to overtype any data on that screen.

11.1 Using ISPF/PDF

- You can change the display by scrolling in any direction (up, down, left, or right) by a half or full page, or by any number of lines (or columns). Scrolling is performed by pressing a program function key.
- You can perform line-oriented editing operations by entering a line command directly on the line that is affected. That is, you type D on a line to delete it or R to repeat it. You can perform commands on several lines at the same time.
- You can perform general editing operations by entering primary commands in the command input field on line 2 of the display. For example, the FIND command is a primary command that scans data looking for a specific character string. The CANCEL command is used to terminate EDIT without saving data. The RESET command resets the data being edited.
- If you are a new customer, it is recommended that you skim over the EDIT tutorial, using the tutorial SKIP(s) command to bypass advanced or complex functions and capabilities.

11.2 ISPF Educational Aids

There are two educational aids available for ISPF. The first is an Interactive Instructional System (IIS) course and the second is an SPF tutorial. You must be registered to take the IIS Course (Section III). In terms of difficulty, the tutorial is for the more experienced customer, while the IIS course is for someone who is using the text editor for the first time. Procedures for using both are shown below:

IIS Course	Tutorial
Type in: TS033, Hit Enter Key	Type in: TS058, Hit Enter Key
Prompt: Enter USERID	Prompt: Enter USERID
Type in: Your TSO ID, Hit Enter Key	Type in: Your TSO ID, Hit Enter Key
Prompt: Enter Current Password	Prompt: Enter Current Password
Type in: Your Password, Hit Enter Key	Type in: Your Password, Hit Enter Key
Prompt: Ready	Prompt: Ready
Type in: IIS, Hit Enter Key	Type in: PDF, Hit Enter Key
Prompt: TYPE COURSE NAME	Prompt: ISPF/PDF Primary Option Menu
Type in: SPFUSE, Hit Enter Key	Type in: T, Hit Enter Key

11.3 Reference

ISPF General Information GC34-2078

For information regarding the above reference, contact the OMIS Librarian.

11.4 Assistance

For technical assistance, contact:

TECHNICAL HELPLINE
(617) 727-3449

12. NATURAL (Version 1.2)

NATURAL is an interactive development system designed for use with the ADABAS Data Base Management System. The NATURAL System contains the NATURAL Programming Language (NPL). NPL is a high level programming language that enables the NATURAL customer to easily create applicatio programs. A subset of NPL forms the ADABAS Report Writer (ADACOM).

12.1 Using NATURAL

NATURAL can be used for the following applications:

- Ad hoc data base inquiry
- Menu-driven customer communication
- Screen format creation
- Data entry on predefined screens
- On-line transaction processing
- Non-ADABAS file processing
- Creation of online/batch applications
- Report generation

12.2 Features

- Ease of use
- Reduced program development time
- Mapping
- Relational Data Base support
- Logical transaction processing
- Dynamic program storage/retrieval
- Full screen editor
- Screen paging
- Interactive HELP facility
- Security System

12.3 References

NAT-120-001	Introduction
NAT-120-010	Installation and Operations Manual (OS)
NAT-120-020	User's Manual
NAT-120-030	Reference Manual
NAT-120-031	Reference Data Card
NAT-120-060	Error Messages Manual

For information regarding the above references, contact the OMIS Librarian.

12.4 Assistance

For application - specific information contact:

TECHNICAL HELPLINE
(617) 727-3449
727-7641 (PMIS)

For technical support on the actual system, contact:

Jim Buckner, Director
Data Base Administration
1 Ashburton Place, Rm. 811
Boston, Ma. 02108
(617) 727-5852

13. Statistical Analysis System (SAS) Version 82.4

SAS is a comprehensive system for retrieving and managing data, performing statistical analysis, and writing reports.

13.1 Capabilities

SAS statistical capabilities include:

- least squares procedures
- matrix manipulation procedures
- multiple and partial correlation coefficients
- time series data analysis

13.2 Prerequisites

Using SAS requires

- access to an Amdahl 5860 terminal
- a working knowledge of TSO
- a working knowledge of SPF
- a working knowledge of JCL

13.3 Using SAS

The following items present sample JCL statements for executing an infile SAS program.

Line	Statement
1	//USERID JOB ACCOUNT#,MSGCLASS=X,CLASS=A,NOTIFY=USERID
2	//EXEC SASUSC
3	//DDNAME[1] DD DSN=USR.GENERAL.NAME.OF.DATA.SET(MEMBER)[2],DISP
4	//SYSPRINT DD SYSOUT=X
5	//SYSIN DD DSN=USR.GENERAL.NAME.OF.DATA.SET(MEMBER)[3],DISP=SHR

1 - Must match infile name
2 - Name of data
3 - Name of code

13.4 References

SAS User's Guide: Basics 1982 Edition
SAS User's Guide: Statistics 1982 Edition
SAS Companion for OS Operating Systems and TSO 1984 Edition

For information regarding the above references, contact the OMIS Librarian.

13.5 Technical Assistance

For technical assistance, contact:

Information Center

(617) 727-5639

14. TSO - Introduction

TSO is a time-sharing option system that allows the use of the BCS computer at a remote terminal. TSO allows a customer to:

- enter, store, modify, and retrieve data at a terminal
- develop programs written in FORTRAN, COBOL, or other languages
- execute and interactively debug programs

14.1 Using TSO

A customer ID and password is required at logon. The logon password will be assigned by the Customer Service Department (Section I) and may be changed if the customer so requests.

An authorized agency representative must inform the Customer Service Department when an agency employee has either been terminated or transferred. This is necessary so that we can keep our billing information up-to-date and not charge you for ID's no longer in use by your agency. For further details, refer Section II, 1.3.

All logon procedures will reside in a system library and will be registered and controlled. A standard logon procedure, $TSUSER, will be provided for normal use of COBOL and FORTRAN. This logon procedure allows the dynamic concurrent allocation of 30 data sets.

For the IBM 3033, Enter TSO33
For the AMDAHL 5860, Enter TSO58

14.2 Security

Dataset access is controlled by the Resource Access Control Facility (RACF). RACF controls the disposition (OLD or SHR) through which a dataset may be allocated. In general, a system dataset should only be allocated as SHR. RACF controls the type of access allowed to a dataset (READ, UPDATE, or ALTER). TSO customers are not allowed UPDATE or ALTER access to system datasets.

14.3 DASD Storage

DASD Storage is controlled by the Disk Management System (DMS/OS). DMS/OS controls both the total amount of DASD space a customer may leave allocated and the length of time inactive datasets may be left on the storage packs.

TSO datasets will be backed up daily. For more detailed information, please refer to File Management (Section VIII).

14.4 TSO Resource Limits

All customers are entered into the system with a default region specification of 768k. The maximum TSO region size limit is 2048k.

Each TSO Session has a maximum CPU time limit of five minutes to guard against programs looping needlessly. There is also a maximum WAIT time limit of 20 minutes. A TSO customer will be cancelled if either of these limits is exceeded.

Dynamic mounting of volumes (tapes or private disk volumes) is not permitted under TSO.

14.5 Command Language

The following is a list of the commands available for TSO. When a short form has been placed in parentheses, it is acceptable as computer input.

14.5.1 Language Processing Commands:

ASM	Invoke Assembler prompter and assembler F compiler
COBOL	Invoke COBOL Prompter and ANS COBOL Compiler.
FORT	Invoke FORTRAN Prompter and FORTRAN IV G1 Compiler.

14.5.2 Program Control Commands:

CALL	Load and execute the specified load module.
LINK	Invoke link PROMPTER and Linkage Editor.
LOADGO(LOAD)	Load and execute program.
RUN(R)	Compile, Load, and execute program.
TEST	Test customer program.

14.5 Command Language (Continued)

14.5.2 Program Control Commands: (Continued)

ALLOCATE (ALLOC)	Allocate a dataset.
CONVERT	Sift ITF/PL1 and FORTRAN Source.
DELETE(DEL)	Delete a dataset.
EDIT(E)	Create, edit, and/or execute a dataset.
FORMAT	Format and print a text dataset.
FREE	Release a dataset.
LIST	Display a dataset.

14.5.3 Data Management Commands:

LISTALC	Display active datasets.
LISTBC(LISTB)	Display messages from operator/customer.
LISTCAT (LISTC)	Display customer.
LISTDS	Display dataset attributes
MERGE	Combine datasets.
RENAME	Rename a dataset.

14.5.4 Session Control Commands:

EXEC(EX)	Invoke command procedure.
HELP(H)	Invoke help processor.
LOGOFF	End terminal session.
LOGON	Start terminal session.
PROFILE(PROF)	Define customer characteristics.
SEND(SE)	Send message to operator/customer.
TERMINAL (TERM)	Define terminal characteristics.
TIME	Log session usage time, time of day, date.
WHEN	Conditionally execute next command.

14.5.5 Foreground Initiated Background Commands:

CANCEL	Cancel background job.
OUTPUT(OUT)	Direct output medium for background job.
STATUS(ST)	List status of background job.
SUBMIT(SUB)	Submit background job.

14.5.6 Access Method Service Commands:

ALTER	Alter attributes in catalog entries.
CNVTCAT	Entries in an OS Catalog are converted to entries in an existing VS2 Master or Customer Catalog.
DEFINE(DEF)	Define Customer Catalogs, Data Spaces, Clusters, Page Spaces, Non-VSAM data sets, Alias Names, and generation data groups.
EXPORT(EXP)	Move a cluster or customer catalog entry into the system in which the command is executed.
IMPORT(IMP)	Move a cluster or customer catalog entry from the system in which the command is executed.
PRINT	List all or part of an indexed sequential, sequential, or VSAM dataset.
VERIFY	Verify end of file.

14.5.7 Commands Added to TSO by MASS/BCS:

*COURSES	See course catalog for computer aided instruction.
DSNCHECK (DSNC)	Check for the existence of a data set or member of a PDS.
FREEALL (FA)	Free all dynamically allocated files.
IIS	Invoke the IBM Interactive Instructional System.
INSTREAM(IN)	Create instream data in a temporary file.
ISPFPROF	Allocate or create the ISPF Profile data set.
K	Clear the TSO Screen when using VTAM.
LIBCALL (LCALL)	Execute a program without knowing the library name.
NEWSPACE	Easy way to create new partitioned or sequential data sets.
PDF	Allocate the ISPF Profile dataset, then enter ISPF/PDF.
PDS	An all encompassing utility for a partitioned dataset.
REGISTER*	Request to register for Computer Aided Instruction.
SAFECOPY (SAFEC)	Enable several customers to write to a data set simultaneously.
SYSDSN (SYSD)	Find out who is using or waiting to use a dataset.

*Indicates CLIST.

14.6 References

. TSO Terminal User's Guide	GC28-0645
. OS/VS2 TSO Terminals	GC28-6762
. TSO Command Language Reference	GC28-0646

For information regarding the above references, contact the OMIS Librarian.

In addition to these manuals, information about TSO commands may be found by using the HELP command while in TSO.

14.7 Assistance

For technical assistance on the TSO system, contact:

Bill Bates, Systems Programmer
Technical Service Unit
1 Ashburton Place, Rm. 811
Boston, Ma. 02108
(617) 727-5852

Utilities

This section provides you with the standard IBM OS/VS2 utility programs that are supported on the OMIS network.

1. IBM Utilities

2. DFSORT

3. Data Set Function (DSF)

V. UTILITIES

1. IBM Utilities

1.1 Available Utility Programs

The following utility programs are available for use on the OMIS network.

IDCAMS	Processes VSAM files
IEBCOMPR	Compares records in sequential or partitioned data sets.
IEBCOPY	Copies, compresses, or merges partitioned data sets, selects or excludes specified members in a copy operation, and renames and/or replaces selected members of partitioned datasets.
IEBDG	Creates a test dataset consisting of patterned data.
IEBEDIT	Selectively copies job steps and their associated JCL statements.
IEBGENER	Copies records from a sequential dataset or a partitioned dataset member, or converts a dataset from sequential organization to partitioned organization or vice versa.
IEBISAM	Places source data from an indexed sequential dataset into a sequential dataset in a format suitable for subsequent reconstruction.
IEBPTPCH	Prints or punches records that reside in a sequential or partitioned dataset.
IEBTCRIN	Constructs records from an input data stream that has been read from the IBM 2495 tape cartridge reader.
IEBUPDTE	Incorporates changes to a sequential or partitioned dataset.
IEHLIST	Lists system control data.
IEHMOVE	Moves or copies collections of data.
IEHPROGM	Scratches, renames, catalogs, or uncatalogs non-VSAM datasets and builds or deletes CVOL indices. (Note: connect and password functions are not available for general use.)

2. DFSORT

IBM DFSORT is a generalized sort/merge program for both the 5860 and the 3033 mainframes. Some of the newer DFSORT features include:

- Ability to interface with programs and exits that use the new addressing mode and residence mode capabilities of MVS/XA.
- Ability to use an extended parameter list when invoking SORT/MERGE from another program.
- Options can be specified from several sources to allow more flexibility in overriding installation defaults.

2. DFSORT (Continued)

- Messages containing "options in effect" information.
- Ability to specify comment statements.
- Minimum amount of storage needed to run DFSORT has been raised to 88K for better performance.

The cataloged procedure available for DFSORT is:

PROCEDURE	FUNCTION
SORT	EXECUTE ICEMAN

2.1 References

Getting started with DFSORT	SC26-4109
DFSORT Application Programming: Guide	SC33-4035
DFSORT Installation	SC33-4034
DFSORT Reference Summary	SX33-8001

For information regarding the above references, contact the OMIS Librarian.

3. Data Set Function (DSF)

DSF is a special utility program that functions to backup datasets to magnetic tape. DSF will also restore datasets from its backup tapes. The standards and procedures used with DSF are stated below:

- Operational and Data Set Security Restrictions - DSF may be used to backup customer datasets to tape. The customer must have READ access to any protected datasets being dumped. DSF may be used to restore datasets from a customer-created backup tape. If the dataset being restored to disk is protected, the customer must have update access to the dataset.

- DSF may be used to restore datasets from OMIS-created weekly backup tapes. Public disk packs are backed up to tape at regular intervals and the latest backup tape is available for dataset restores. If the dataset being restored was protected when it was backed up to tape, the submitter of the DSF restore must have READ access to that dataset. If the dataset was protected when the back-up was taken, then it will be protected after the restore is complete.

- Datasets must be preallocated on the disk pack before they can be restored. DSF will restore Indexed Sequential Access Method (ISAM) and unmovable datasets only to the same track addresses from which they were dumped.

3.1 DSF Control Card Formats - The DSF control statements have the following format: the operation keyword (DUMP - RESTORE) may begin anywhere after column 1 (column 1 must be blank and must be separated by at least one blank from the option keyword (DSN or DD).

The DSF control card format also allows for continuation cards. The control card to be continued must terminate prior to column 72 with a comma (,) and at least one blank. On the continuation card, the next operand must start and complete prior to column 72. Any control must contain at least one complete operand.

```
           DSN = dsname
DUMP       DD  = ddname
           DSN = dsname
RESTORE    DD  = ddname
```

DSN = dsname - specifies the dataset to be dumped from the disk or the dataset to be restored from tape.

DD = ddname - specifies a DD card which contains a dataset name. The DD = format must be used to address a dataset by generation level number.

Compilers/Assemblers

This section describes language processors and system control languages available on the OMIS network. A computer program, called a "compiler", converts the high-level language statement that the customer enters, into a symbolic machine language. An "assembler," is another computer program, that takes the symbolic machine language and converts it into a binary language that the computer can understand. The following descriptions will provide you with an overview of compiler and assembler features.

1. IBM COBOL Compiler
2. FORTRAN Compiler
3. VS Assembler

VI. COMPILERS/ASSEMBLERS

1. IBM COBOL COMPILER

The IBM OS COBOL Compiler and Library is compatible with the highest level of American National Standard COBOL and contains a number of extensions to that standard. It also contains a number of functional and performance improvements over previous versions.

The main features available with this compiler are optimizer object code, COBOL teleprocessing, and advanced symbolic debugging capabilities. The optimized object code feature allows for a considerable reduction in object-time code. With the teleprocessing feature, the customer can write device-independent message-processing programs using COBOL lanaguage statements to send and receive messages over a communication network. Advanced symbolic debugging can result in a marked saving on debugging time.

The cataloged procedures available for the COBOL Compiler and Library are:

PROCEDURE	FUNCTION
COBUC	Compile
COBUGC	Compile and execute
COBUCL	Compile and link edit
COBUCLG	Compile, link edit, and execute

1.1. COBOL Compiler Defaults

The defaults of the Compiler are:

SIZE=25600
BUF=12800
NOBATCH
APOST
NOADV
NODECK
DMAP
NODYNAM
NOENDJOB
FLAGW
NOFLOW
LINECNT=57
NOLIB
NOCLIST
LOAD
NONAME
NONUM
OPTIMIZE
PMAP
NORESIDENT
SEQ
SOURCE
SPACE1
NOSTATE
SUPMAP
NOSYMDMP
NOSYNTAX
SYST
SXREF
NOTERM
NOTEST
TRUNC
NOXREF
VERB
ZWB

1.2 Sample COBOL Cataloged Procedures

1.2.1 COBUC Cataloged Procedure - This procedure performs a compilation. The following items present sample JCL statements for executing this procedure:

```
//STEP1 EXEC COBUC
//COB.SYSIN DD *
  (source deck)
/*
```

1.2.2 COBUCL Cataloged Procedure - This procedure performs a compilation and link edit. The following items present sample JCL statements for executing this procedure:

```
//STEP1 EXEC COBUCL
//COB.SYSIN DD *
  (source deck)
/*
//LKED.SYSLMOD DD DSN=user.loadlib(member),DISP=SHR
/*
```

1.2.3 COBUCLG Cataloged Procedure - This procedure performs a compilation, link edit, and execution. The following items present sample JCL statements for executing this procedure.

```
//STEP1 EXEC COBUCLG
//COB.SYSIN DD *
  (source deck)
/*
//GO.SYSIN DD*
  (data)
/*
```

1.3 References

IBM OS Full American National Standard COBOL	GC286396
IBM OS Full American National Standard COBOL Compiler and Library Programmer's Guide, Version 4	GC286483

For information regarding the above references, contact the OMIS Librarian.

2. VS FORTRAN Compiler

The newest version of the VS FORTRAN Compiler has recently become available to our customers on the Amdahl 5860. This newer release will provide you with even more functions than the previous model. It is primarily used for writing computational programs.

VI. COMPILERS/ASSEMBLERS

2.1 Procedures

In order to access this new compiler, the following procedures have been added to the SYS1.PROCLIB:

FORTVC
FORTVCG
FORTVCLG
FORTVG
FORTVL
FORTVLG

2.2 Default Options

The compiler default options are:

VSFORTC
LANGLVL=77
FIPS=NOFIPS
SORCIN=FREE
PUNCH=NODECK
SORLIST=SOURCE
STORMAP=MAP
OBJPROG=OBJECT
LINECT=60
DATE=MDY
SRCFLG=SRCFLG
TRMFLG=TRMFLG
OBJID=GOSTMT
OPTIMIZ=0
SORXREF=NOXREF
FORTERM=TERMINAL
FLAG=I
TEST=NOTEST
INSTERR=NOLIST
NAME=MAIN
CHARLEN=500
SYM=NOSYM

VSFORTL
UNTABLE=50
ONLNPCH=07
DECIMAL=PERIOD
ONLNRD=05
OBJERR=06

2.3 Assistance

For further information, contact:

Bill Bates, Systems Programmer
Technical Service Unit
1 Ashburton Place, Rm. 811
Boston, Ma. 02108
(617) 727-5852

2.4 Reference

VS Fortran Installation and Customization (Release 4.0)
SC26-3987

For information regarding the above reference, contact the OMIS Librarian.

3. VS ASSEMBLER

The VS Assembler is supplied with the MVS System. The OS/VS Assembler language offers new instructions and functions, relaxation of language restrictions, new system variable symbols, and new options that were not available with Assembler F. For further information, consult the referenced publication (Paragraph 3.5).

The cataloged procedures available for the VS Assembler are:

PROCEDURE	FUNCTION
ASMFC	Assembly
ASMFCL	Assembly and link edit
ASMFCG	Assembly and execute
ASMFCLG	Assembly, link edit, and execute

3.1 VS Assembler Defaults

The defaults of the VS Assembler are:

ALIGN
ALOGIC
BUFSIZE(STD)
NODECK
ESD
FLAG(0)
NOLIBMAC
LINECOUNT(55)
LIST
NOMCALL
NOMLOGIC
NONUMBER
OBJECT
NORENT
RLD
NOSTMT
SYSPARM()
NOTERM
NOTEST
XREF

3.2 Sample VS Assembler Cataloged Procedures

3.2.1 ASMFC Cataloged Procedure - This procedure performs an assembly. The following items present sample JCL statements for executing this procedure:

```
//STEP1 EXEC ASMFC
//ASM.SYSIN DD *
  (source deck)
/*
```

3.2.2 ASMFCL Cataloged Procedure - This procedure performs an assembly and link edit. The following items present sample JCL statements for executing this procedure:

```
//STEP1 EXEC ASMFCL
//ASM.SYSIN DD *
  (source deck)
/*
//LKED.SYSLMOD DD DSN=user.loadlib(member),DISP=SHR
/*
```

3.2.3 ASMFCLG Cataloged Procedure - This procedure performs an assembly, link edit, and execution. The following items present sample JCL statements for executing this procedure:

```
//STEP1 EXEC ASMFCLG
//ASM.SYSIN DD *
  (source deck)
/*
//GO.SYSIN DD *
  (data)
```

3.3 References

OS/VS-DOS/VS VM/370 Assembler language	GC33-4010
OS/VS Assembler Programmer's Guide	GC33-4021
SYSTEM/370 Principles of Operation	GA22-7000

For information regarding the above references, contact the OMIS Librarian.

Job Processing

Job Processing, frequently referred to as background or batch processing, is the serial execution of computer programs, or the processing of data accumulated over a period of time. This section provides you with the various components of job submission and execution.

1. Job Control Language (JCL)

2. Job Card

3. Batch Job Standards and Procedures

4. Automated Production Scheduling System (Apex)

1. Job Control Language (JCL)

JCL is supported on the OMIS network. It directs the operating system in the handling of application programs. When submitting programs to the operating system, you can provide JCL statements to define the work to be done, the methods to be used, and the resources needed. In addition, you can obtain special input and output processing by including JES2 (job entry subsystem 2) control statements for the job entry subsystems. A collection of related problem programs is submitted to the operating system as a job. A job is made up of one or more job steps, each of which is a unit of work associated with the overall processing program.

1.1 Job Statements

Job control language consists of nine statements. The name and purpose of each statement is summarized below.

Name of Statement	Purpose
//JOB (job)	marks the beginning of a job; assigns a name to the job.
//EXEC (execute)	marks the beginning of a job step; identifies the programs to be executed or the cataloged or in-stream procedure to be called; assigns a name to the step.
//DD data definition	identifies a data set and describes its attributes.
/*(or two characters designated by the customer to indicate delimiter)	indicates the end of data placed in the input stream.
//(null)	marks the end of a job.
//PROC (procedure)	for cataloged procedures, assigns default values to parameters defined in the procedure; for in-stream procedures, marks the beginning of the procedure.
//PEND (procedure end)	marks the end of in-stream procedure.
//*(comment)	contains comments.
//(command)	enters system operator commands through the input stream.

1.2 References

BCS JCL Standards and Procedures (Contact Customer Service Deptartment)		
OS/VS2 JCL.VS2 Release 3.8		GC28-0692
OS/VS Message Library: VS2 System Messages	V.1	GC28-1374
	V.2	GC28-1375
OS/VS Message Library: VS2 System Codes		GC38-1008

For information regarding the above references, contact the OMIS Librarian.

2. Job Card

The job card is another term used for a job statement. It identifies the beginning of a job. When jobs are stacked in the input stream, the job card also marks the end of control statements for the preceding job.

2.1 Job Card (Statement) Format for TSO submitted jobs

The following fields are REQUIRED:

FIRST JOB STATEMENT

1 - 2	//	(constant)
3 - 9	aaannnn	your TSO identity
10		a single alpha character to differentiate jobs
11	blank	(constant)
12 - 14	JOB	(constant)
15	blank	(constant)
16	T	(constant - To indicate Test or Non-scheduled Production)
17 - 24	nnnnnnnn	Billing-code: 8 chars, assigned by OMIS Administration
25	,	(comma)
		Comments, enclosed in single quotes (up to 20 chars - your name & location)
	,	(comma)
	CLASS=?	Input class
	,	(comma)
	MSGCLASS=?	(constant)

the following fields are optional

,	(comma & only req'd if any optional fields are to be used)

2.1 Job Card (Statement) Format for TSO submitted jobs (Continued)

SECOND JOB STATEMENT

1 - 2	//	(constant)
3	blank	(constant)
4 - 10	NOTIFY=	(constant)
11 - 17		TSO identity (same as the first 7 chars of the job-name)

SAMPLE JOB STATEMENT

```
//MVP5000D JOB 97412310,'progname- MCCORMACK',CLASS=A,MSGCLASS=2,
// NOTIFY=MVP5000
```

PRINTED OUTPUT routing

use MSGCLASS=X	to return messages to your CRT
use MSGCLASS=Z	to omit printing or display of messages
use SYSOUT-*	in the JCL to refer back to the message class

3. Batch Job Standards and Procedures

To facilitate your batch job submission and execution, certain standards and procedures must be followed. A complete description of these standards and procedures has been compiled by the Customer Service Department. If your agency has not yet received this publication, contact:

Customer Service Department
1 Ashburton Place, Rm. 801
Boston, Ma. 02108
(617) 727-9146

4. Automated Production Scheduling System (Apex)

Apex improves communication among production functions and the customer. It enhances coordination of the scheduler's task and controls the production work flow. Apex serves as a source of information for forecasting, planning, and managing the work flow on a daily basis.

4.1 Features

- Increases scheduling flexibility, produces on-line hard copy schedules
- Eliminates card handling, standardizes JCL, provides parameter sequences

4.1 Features (Continued)

- Eliminates manual effort, redundant tasks, and reruns due to set-up errors
- Provides timely execution without operator intervention, eliminates human errors
- Assures correct job sequencing: no job or task is released until predecessor requirements are satisfied
- Prevents delays caused by abend (abnormal program ending) processing, reduces dependency on programmers (automated Restart/Recovery)
- Allows job or system output to be viewed before printing (JCL, report balances, JES (Job Entry System) Log information).
- Allows free form or formatted documentation to be entered on-line
- Prevents unauthorized access
- Provides immediate, up-to-date status on all productive processing information

4.2 Benefits

- Flexibility
- Human Error Elimination
- Ease of Use
- Adaptability
- JCL Management
- On-line Output Review
- Help Facility
- Automated Job Submission
- Calendar Facility
- Security
- Library Management

4.3 Assistance

Inquiries concerning any of these guidelines or procedures, as well as any questions regarding the Apex Automated Scheduling System*, should be directed to:

Bob Ragucci, Manager
Computer Operations
One Ashburton Place, Rm. 819
Boston, Ma. 02108
(617) 727-2499

*Production jobs running under Apex control

File Management

Processing data at OMIS requires that you manage your data so it is compatible with the workings of the computer system. The data should be stored in data sets that can be identified and retrieved by the system. This section discusses OMIS' file management facilities and policies, and suggests various methods and procedures you can use to manage your data.

1. Tape Management System (VALU-LIB)
2. Disk Management System (DMS/OS)
3. Dataset Naming Conventions
4. Virtual Storage Access Method
5. Dataset Security

VIII. FILE MANAGEMENT

1. Tape Management

OMIS uses the VALU-LIB tape management system. VALU-LIB enables data centers to exert total control over the disposition, movement, and maintenance of all tape volumes, even those with non-standard labels or no labels at all. In addition, VALU-LIB gives a customer the full facility to maintain and inquire into all information pertinent to the operation and control of the library.

1.1 Overview

To provide you with a basis for understanding VALU-LIB, it may be helpful for you to understand what the following terms mean and, more importantly, how they fit into the total picture. If you already have a clear understanding of how a tape library functions, you should skip this section and continue to "Using Valu-Lib."

Magnetic tape is one means of auxiliary storage for large computer systems. Data is stored on one-half inch magnetic tape as electronic impulses. Data can be written from computer memory and/or disk storage onto tape and can also be read into memory from tape. Reels of magnetic tape are mounted on tape drives for access by the computer. Tape density, which is the number of characters or bytes that can be stored on an inch of tape, varies depending upon the tape drives being used. Common densities are 800 bytes per inch (bpi) and 1600 bpi, with some devices capable of reading and writing at a density of 6250 bpi. When a reel of tape is not in use, it must be stored in a tape library. These reels of tape must be catalogued and stored so that when they are required, they can be taken to the computer room for use.

1.2 Using Valu-Lib

If you would like your data to be stored on magnetic tape, you must recopy the datasets that already exist and code in a retention period parameter (RETPD PARM) for protection of future datasets.

1.3 Guidelines

- For GDG's, you must use the IDCAMS command to build an index on the system catalog before the first tape is created.
- If it's not a production tape and you want to save it, programmers must place the statement "LABEL=RETPD=NNNN" in their JCL. The retention period (RETPD) will be the number of days specified by the customer. "NNNN" is a four-digit number (0000-9999)
- If a tape must be held, for whatever reason, a call must be placed by the customer to notify the Head Tape Librarian to hold the tape for a certain time period.
- If a retention period must be changed, a customer must present a written request to the Head Librarian should copy the tape over specifying a new retention period.
- For tape datasets that are only temporary, code in JCL DISP=(NEW,DELETE); such tapes will not be retained by VALU-LIB and will be automatically scratched (RETPD=0).
- The retention period for a test dataset is determined at your own discretion. Allocate a retention period which is sufficient to meet your needs.

1.4 In order to assist the tape librarians as well as to provide our customers with a convenient method for tracking tape activity, VALU-LIB generates six types of reports. They include:

- Dataset Audit
- Tape Retention
- Offsite Listings
- Daily Activity
- Daily Scratch
- Overall Scratch

Upon request, Computer Operations will send a complete listing of every tape the customer has requested, to the agency's programmer. The tape owner can then use the lists to discuss the status of their tape volumes. The reports can help you to evaluate your tapes and decide if you would like to:

- change an expiration date
- scratch a tape prior to its normal expiration date
- send a tape volume offsite
- change an account code

1.5 JCL Concepts

For VALU-LIB to function properly in the OMIS environment, the following concepts should be understood and applied when coding JCL statements for tape datasets.

1.5.1 Temporary Datasets.

A temporary dataset is created and used in a job step or passed onto a future step of the same job, but it is always deleted at that job's completion (i.e. sort work files, compiler scratch files, etc.). Temporary datasets will always be preceded by &&.

1.5.2 Permanent Datasets.

A permanent dataset is one that can be accessed by jobs at a future date. Permanent dataset names should follow the OMIS naming conventions (Section VIII Paragraph 3). When creating a permanent dataset on tape, consideration should be given to these JCL parameters:

. DSN	- code a dataset name that follows the OMIS naming conventions
. DISP	- code the following DISP=(NEW,CATLG) to keep and catalog the created dataset. (The LABEL parameter specifying a retention period must also be used to save the dataset,)
. VOL=SER	- omit this parameter except when adding a new dataset to an existing tape volume, when extending (MOD) onto an existing dataset, or when retrieving an uncataloged dataset on a tape volume.

1.5.2 Permanent Datasets (continued)

- UNIT - code this parameter with the appropriate generic UNIT name. (Example - UNIT=TAPE)
- LABEL - code one of the following:

  LABEL=(,,RETPD=NNNN) where NNNN is a 4-digit number of days that should be added to the current date to produce an expiration date.
  LABEL=(,,EXPDT=YYDDD) where YY is a 2-digit year number, DDD is a 3-digit day number. YYDDD is the Julian form of the expiration date.

If no expiration date is coded on the DD card for a permanent dataset, VALU-LIB supplies a 1 day default retention period. A realistic expiration date should always be coded, and carefully considered to avoid loss of data as well as an excessive number of saved tapes.

1.6 Generation Datasets (GDS)

GDS's are a collection of successive, historically related, cataloged datasets known as a generation data group (GDG). The system keeps track of each dataset in a GDG as it is created so that new datasets can be chronologically ordered and old ones easily retrieved.

A GDG can consist of cataloged sequential, partitioned, and direct datasets residing on tape volumes, direct access volumes, or both. If the GDG resides on more than one device type, all generations cannot be retrieved together. GDS can have similar data control block (DCB) attributes and dataset organizations.

1.6.1 Creating a GDS

Base Entry

Before defining the first GDS, a GDG base entry must be built in a VSAM catalog. This entry specifies the number of datasets in the group, action to be taken when this number is reached, and disposition of each dataset after its entry is removed. There are two programs for creating base entries:

- For entries in a VSAM customer catalog, the DEFINE command of access methods services is used

1.6.2 Defining a Dataset

When defining a new GDS, always code the DSNAME, DISP, UNIT, and DCB parameters. Other parameters that might be needed are the VOLUME, SPACE, and LABEL parameters.

- DSNAME - Code the name of the GDG followed by a number enclosed in parentheses. This number must be +1 or greater and used for all references to the dataset for the life of the job.

```
DSN = DAL.MYGDG(+1)
DSN = DAL.MYGDG(+2)
```

- DISP - Assigned a status of NEW and a disposition of CATLG. If the DISP parameter is not specified, the default of DELETE will be assumed.

```
DSN = DAL.MYGDG(+1), DISP=(NEW,CATLG)
```

- UNIT - The UNIT parameter is required on any DD statement defining a new GDS. Identify the type of device required

```
DSN=DAL.MYGDG(+1), DISP=(NEW,CATLG), UNIT=TAPE
```

- DCB - The DCB parameter is required to provide the DSCB name data set attributes.

1.6.3 Retrieving a GDS

When retrieving a GDS, always code the DSNAME and DISP parameters. Parameters that might be needed are LABEL, and DCB.

- DSNAME - Code the GDG name followed by a number in parentheses that indicates the relative generation you want to retrieve, with (0) being the latest generation, (-1) being the next to latest, etc.

```
DSN=DAL.MYGDG(0)
DSN=DAL.MYGDG(-2)
```

- DISP - The DISP parameter must always be coded, and must be OLD, SHR, or MOD. The second subparameter must be specified for GDS, using either KEEP, PASS, or DELETE.

```
DSN=DAL.MYGDG(0),DISP=(OLD,KEEP)
DSN=DAL.MYGDG(-2),DISP=(MOD,PASS)
```

1.6.4 Valu-Lib Tape Inquiries

In order to access any information on a tape stored in VALU-LIB, follow these procedures:

1. Go to a terminal (The screen should display the BCS "WELCOME" message).
2. Type in: LOGON APPLID(VCS), Hit Enter
   LOGON TO VALU-LIB
3. Prompt: Enter CMD
   Type in: "VCMAINT", Hit Enter
4. PROMPT: VCI VTM COMMUNICATIONS STARTED REL. 2.00
   Hit Enter Again
5. PROMPT: PLEASE ENTER USERID, PASSWORD:
   Type in: Your Userid (8 positions) and the password "SYS"
6. You are now under VALU-LIB and have the Inquiry Capability

Examples of Commands

1.	DSPLVSN,000000	. Displays the Tape Number
2.	DSPLDSR,xxx.xxxxx.xxxxx	. Displays the Dataset Record (Then Hit the PF2 Key)
3.	DSPLDSE,,000000	. Displays the Dataset Element

Note: Whenever zeroes appear in a command, enter your tape number. Whenever x's appear in a command, enter the name of the file on tape.

Signing Off From Valu-Lib

1. Type in: END
   Ends Terminal Session
2. Again, Type in: End
   Takes you completely out of VALU-LIB

For additional assistance, contact:

Bob Ragucci, Manager
Computer Operations
1 Ashburton Place, Rm. 819
Boston, Ma. 02108
(617) 727-2499

OR

Nancy Maguire, Head Tape Librarian
Tape Library
1 Ashburton Place, Rm. 819
Boston, Ma. 02108
(617) 727-2636

1.6.5 References

OS/VS2 Access Method Services (Release 3)	GC26-3841
OS/VS2 JCL (VS2 Release 3.7)	GC28-9692
OS/VS2 Utilities (VS2 Release 3)	GC35-0005
System/370 Job Control Language (Gary Deward Brown)	

For information regarding the above references, contact the OMIS Librarian.

2. Disk Management System (DMS/OS)

If you frequently access your data, disk storage is advisable. Magnetic disk devices are often called direct access storage devices (DASD) because of their ability to randomly store and retrieve data kept on disk. DMS/OS is an OMIS proprietary software package used to control and monitor permanent DASD datasets. DMS/OS has an archival feature that can copy all expired datasets to tape before the datasets are scratched.

2.1 Using DASD

All DASD is divided into the following five classes: Production, Permanent, Test, TSO and Temporary. Space allocation for both Production and Permanent datasets is accomplished through the DASD Management Team, Customers must contact the DASD Management Team, to obtain an allocation form. (See Paragraph 2.2). All other DASD space allocation is done by the customer using either Batch or TSO.

If using TS058, a customer may calculate space requirements for a 3380 disk by getting into the READY mode and using the SPACER command. This SPACER command will generate: records per track, optimum block size, optimum blocks per track, tracks needed, cylinders needed, and sort work space.

PRODUCTION

1. STATUS - Permanent allocation
2. NAMING CONVENTION - Standard names as defined in Section VIII paragraph 3.
3. ALLOCATION DONE BY - DASD Management Team upon request of a customer
4. ARCHIVE - As designated by the owner
5. BACKUP - Once a week by BCS
6. ESOTERIC UNIT - None
7. VOLUME ATTRIBUTES - Private
8. SPACE LIMITS - None
9. SPACE RELEASE - None
10. SCRATCH CONSIDERATIONS - None

2.1 Using DASD (Continued)

PERMANENT

1. STATUS - Permanent allocation
2. NAMING CONVENTION - Standard names as defined in Section VIII paragraph 3.
3. ALLOCATION DONE BY - DASD Management Team upon request of a customer
4. ARCHIVE - None
5. BACKUP - Once a week by BCS
6. ESOTERIC UNIT - None
7. VOLUME ATTRIBUTES - Private
8. SPACE LIMITS - 5 cylinders without justification
9. SPACE RELEASE - None
10. SCRATCH CONSIDERATIONS - None

TEST

1. STATUS - Permanent allocation
2. NAMING CONVENTION - Standard names as defined in Section VIII Paragraph 3 including TSO standard names
3. ALLOCATION DONE BY - Customer in BATCH or TSO
4. ARCHIVE - None
5. BACKUP - Daily incremental by BCS
6. ESOTERIC UNIT - TESTDA
7. VOLUME ATTRIBUTES - Storage
8. SPACE LIMITS - 5 CYLINDERS with no secondary allocations
9. SPACE RELEASE - If unused in 30 days
10. SCRATCH CONSIDERATIONS:
    A. Use of non standard name
    B. Exceeding space limits
    C. Use of unmovable attribute

TSO

1. STATUS - Permanent short term allocation
2. NAMING CONVENTION - TSO Standard names
3. ALLOCATION DONE BY - Customer in BATCH or TSO
4. ARCHIVE - After 2 weeks of no reference
5. BACKUP - Daily incremental by BCS
6. ESOTERIC UNIT - TSOPK
7. VOLUME ATTRIBUTES - Storage
8. SPACE LIMITS - 1 CYLINDER with no secondary allocations
9. SPACE RELEASE - None
10. SCRATCH CONSIDERATIONS:
    A. Use of non standard name
    B. Exceeding space limits
    C. Use of unmovable attribute

2.1 Using DASD (Continued)

TEMPORARY

1. STATUS - Temporary for the life of the JOB or STEP
2. NAMING CONVENTION - Temporary (&&) or unnamed
3. ALLOCATION DONE BY - Customer
4. ARCHIVE - None
5. BACKUP - None
6. ESOTERIC UNIT - SYSDA
7. VOLUME ATTRIBUTES - PUBLIC
8. SPACE LIMITS - None
9. SPACE RELEASE - None
10. SCRATCH CONSIDERATIONS - Automatic at end of JOB or STEP

2.2 Assistance

For further information and detailed procedures, contact:

DASD Management Team, Rm. 811
1 Ashburton Place
Boston, Ma. 02108
(617) 727-5852

3. Dataset Naming Conventions

All datasets stored for any period of time, exceeding the duration of the JOB or STEP using it, must conform to a DASD naming convention.

Customers decide which type of datasets they will utilize. Agency datasets are generally classified as those that can be accessed by several IDs within the agency. TSO ID datasets are normally utilized for private programmer libraries.

The following are the naming conventions observed in each case:

3.1. Agency Datasets

All agency datasets will begin with a high-level qualifer, characterized by a maximum of 8 positions.

AAAXXXXX. = High-Level Qualifier

Where AAA is an agency's alpha code assigned by OMIS Administration and XXXXX is an alphanumeric code which the agency assigns at its discretion for further sub-division of the dataset.

3.2 TSO ID Datasets

All TSO datasets that are used by a single, agency employee must adhere to the following naming convention.

AAAXXXX. = TSO ID

Where AAA is an agency's alpha code assigned by OMIS, X is a digit assigned by the system for security purposes, and XXX is the individual TSO customer identifier.

4. Virtual Storage Access Method (VSAM)

VSAM is an access method for use with direct access storage. Its record format differs from other access methods and achieves the device independency objective of VSAM data storage.

VSAM has key-sequenced (KSDS), entry-sequenced (ESDS), and relative-record datasets (RRDS). KSDS records are stored in key sequence and ESDS records are stored in the order in which they are physically loaded. RRDS records are stored in the relative record number sequence.

All VSAM records are stored in units of control interval (CI). These are continuous areas of auxiliary storage that VSAM uses for storing and transferring data records and their control information. A group of control intervals makes up a control area.

VSAM uses it own catalogs - master and customer. They contain a description of VSAM space, available space location, space utilization, and the location of datasets. The master catalog is not accessible by customers however, a customer catalog is shared by all agency staff members who have VSAM datasets on volumes owned by the customer catalog.

4.1 Control Interval (CI) Sizes

The following CI sizes should be used:

- 512 bytes - index data bases and secondary indices
- 4096 bytes - key sequenced and entry-sequenced data sets
- 2048 and 8192 bytes - used for those that do not fit into the above categories

4.2 VSAM Guidelines

- Do not use a JOBCAT or STEPCAT statement. A problem can occur if a JOBCAT or STEPCAT statement is included in a job or step that catalogs an OS dataset via JCL: i.e., DISP=(NEW,CATLG). The catalog entry is entered in the catalog specified by the JOBCAT or STEPCAT. A subsequent job not having a JOBCAT or STEPCAT (or having a different JOBCAT or STEPCAT) cannot access the dataset.

- Customers should be aware of the potential problems of concurrent updates from two systems. In the online/batch multiprocessor environment, only external disposition (i.e., DISP=SHR/OLD) is communicated across the two systems. A problem can occur if only the internal integrity feature via VSAM SHARE options is used. Jobs that use only the SHARE options for data set integrity are vulnerable to concurrent updating between the two systems. If concurrent updating of VSAM data sets from two systems is necessary, customers should use DISP=SHR/ or DISP=OLD.

- For a VSAM dataset that is more frequently accessed for sequential processing, use a large CI size.

- For KSDS datasets, provide enough BUFNI (Buffer Number for Index), BUFNO (Buffer Number), BUFSP (Buffer Space) parameters so that the sequence sets are maintained in the main storage during processing.

- Based on the update estimates, provide sufficient free space in the CI and control areas (CA) without causing splits for the CI and the CA. These splits are quite expensive in terms of expended resources.

- Monitor space used, secondary allocations, and CI and CA splits for more efficient future reallocations.

- Wherever applicable, use IMBED and REPLICATE options to reduce the access times for the index sequence sets.

- Consider the KEYRANGE option wherever the VSAM cluster spands multiple volumes.

- Use NORECOVERY and SPEED option for the transient VSAM clusters. Transient clusters are the data sets created and deleted during the course of a job or multiple jobs in short time intervals.

- With multivolume applications, allocate the index of a KSDS on separate volume.

4.3 References

OS/VS Virtual Storage Access Method (VSAM) Planning Guide	GC26-3799
OS/VS2 Access Method Services	GC26-3842
Planning the Enhanced VSAM under	GC26-3842
OS/VS Virtual Storage Access Method (VSAM) Programmers Guide	GC26-3838
OS/VS Virtual Storage Access Method (VSAM) Options for Advanced Application	GC26-3819

For information regarding the above references, contact the OMIS Librarian.

5. Data Set Security

Once in execution, a job usually attempts to either open a dataset for input or output, scratch, or rename it. Each time a customer's job attempts one of these functions, the Resource Acccess Control Facility (RACF) either confirms authority to proceed or terminates the task abnormally. An abend code of S913 is given for data set security breaches.

5.1 Resource Access Control Facility (RACF)

RACF helps meet the needs for security by providing the ability to: identify and verify customers, authorize customers to access the protected resources, log and report various attempts of unauthorized access to protected resources, and administer security to meet any installation security goals. The types of resources that RACF can protect include: DASD data sets, tape volumes, CICS/VS transactions, applications, terminals, and installation - defined resources.

Contact the RACF Administrator for further information:

Tim O'Brien, RACF Administrator
Technical Services Unit
1 Ashburton Place, Rm. 811
Boston, Ma. 02108
(617) 727-5852

5.2 Dataset Security Registration

Dataset security registration is a tightly regulated process that begins with a request to the appropriate OMIS Security representative. For a specific application (i.e. FOCUS), you would contact the systems analyst. However, the utlimate authority resides in the Security Administrator.

5.3 Types of Access Authority

An owner of a dataset may specify second party access to it in varying degrees. These degrees are called access levels. The following access levels may be specified.

. READ	- the customer specified may only read the dataset
. UPDATE	- the customer specified may read from or write to the dataset
. CONTROL	- the customer specified may use control-interval access to update the dataset
. ALTER	- the specified customer has unlimited access to the dataset (read, write, scratch, rename)
. NONE	- Protects the dataset, but gives the customer no access to it

5.4 Dataset Access

The owner of the dataset specifies the customer permitted access to his or her protected datasets.

5.5 Dataset Protection

Once a dataset name has been registered, the dataset may be protected. Customers can protect datasets by:

- coding on the DD card defining a dataset being created
- using the RACF protection attribute when it is set in the customer profile
- using the ADDSD RACF commands; DELDSD deletes the dataset protection
- using the COPYAUTH keyword when copying a protected dataset with IEHMOVE

An attempt to protect a dataset at creation will abnormally terminate the job if the customer does not have UPDATE access for the specified DSNAME.

Although a dataset name or partial name is registered in the security system, actual protection of the dataset is the responsibility of the customer. If a protected dataset is moved, scratched, or recreated, the customer must use one of the four methods of reprotecting described above.

5.6 References

RACF General Information Manual	GC28-0722-8
RACF Command Language	SC28-0733
RACF Installation Reference Manual	SC28-0734
RACF Messages and Codes	SC38-1014

For information regarding the above references, contact the OMIS Librarian.

Appendix A

Procurement Process for Data and Word Processing Goods and Services

Agencies acquiring data processing goods or services are reminded that no expenditure of any funds (state, federal, or a trust, appropriated or not) can be made for data or word processing goods or services without an approved Request for Authorization for ADP Procurement. The form used for such requests is the AF-29 form, a copy of which is included at the end of Appendix A. The regulations that govern the procurement process were issued as Administrative Bulletin 82-5, and promulgated as 801 CMR 5.00 in the Code of Massachusetts Regulations. These regulations are adopted under the authority of M.G.L.C.7 SS.4 and 22, and M.G.L.C.29 SS.27B and 29A. Agencies exempt from the AF-29 process are the following:

- the Legislature
- the Judiciary
- Constitutional Offices (Secretary of State, State Treasurer, Attorney General, State Auditor)
- Higher Education Institutions
- Certain independent authorities

The OMIS bureau responsible for overseeing the AF-29 process is the Bureau of Systems Policy and Planning (BSPP).

When reviewing requests, BSPP's five major concern are that:

- the requested goods or services will provide a technically feasible solution to the problems of the requesting agency that gave rise to the request;

- the proposed solution is the most cost-effective solution among the feasible alternatives;

- the request is consonant with the agency's ADP Plan;

- the agency has the wherewithal, especially in terms of experienced personnel, to implement and maintain the requested hardware and/or software;

- the proposed method of procurement is legal.

There are four primary methods of procurement: Requests for Proposals (RFP), Invitation for Bids (IFB), orders against a Blanket Contract, and Sole-Source (non-competitive) procurements. A competitive type of procurement, either an RFP or an IFB, must be used if the requested goods or services are not on a blanket contract maintained by BSPP or by the Purchasing Agent and a Sole-Source procurement cannot be justified.

Note: Agencies may not issue RFP's or IFB's without prior approval from BSPP.

Step 1. Agency. - Notice of Proposed Procurement. The agency initiates the procurement request, appoints a procurement coordinator, and sends a Notice of Proposed Procurement to BSPP.

Step 2. BSPP. - Screening Conference. On receipt of a Notice, BSPP creates a file, gives the file a control number, and assigns the requests to a BSPP analyst or Assistant Director. The analyst is responsible for scheduling a screening conference with the procurement coordinator, during which they discuss:

- The AF-29 form
- the nature and scope of the proposed procurement
- the consistency of the proposed procurement with the agency's DP plan
- the method of procurement
- the supporting documents which BSPP will need with the AF-29

Step 3. Agency. - Justification. The agency prepares the AF-29 and supporting documentation, and submits it to its executive office. (Exception, EOAF agencies file the AF-29 and supporting documentation directly with BSPP.)

Step 4. Executive Office. - Review and Approval. The Executive Office reviews the request, signs the AF-29 (if approved) and forwards it to BSPP. Usually this review/approval process is the responsibility of the Secretariat ADP Coordinator.

Step 5. BSPP. - Review and Approval. On receipt of an AF-29, BSPP forwards the request to the assigned analyst, who must recommend approval, conditional approval, or denial of the request to the Director of BSPP, and to the Commissioner of Administration (who has delegated his authority to the Director of OMIS).

Step 6. Legislature. - Review and Approval (Hardware). If the request is approved, and it is to lease or purchase equipment, then it is forwarded to the House and Senate Ways and Means Committees for approval (pursuant to Chapter 234, Section 48, Acts of 1984). Note: There is no minimum dollar amount. All expenditures for data and word processing equipment, regardless of the amount, require House and Senate Ways and Means Committee approval. Transmittal letters are sent every other Tuesday. Agencies may not send requests to the legislature.

Step 7. Procurement Process. Once a request has been approved by BSPP and OMIS, the next step is to undertake a competitive procurement if the type of procurement is to be an RFP or an IFB. (This step is skipped if the type of procurement is "sole-source". It is greatly simplified if the type of procurement is "blanket contract". The simplified procedure for blanket contracts is discussed below.)

a. Agency. The agency nominates a Selection Board in writing to the Director of BSPP, who forwards the letter to the Director of OMIS for approval.

b. OMIS. OMIS many approve the nominations as selected, or add or delete names.

c. Selection Board. The Selection Board is responsible for preparing the procurement documents. The agency's procurement coordinator usually serves as chairperson of the Selection Board. The BSPP analyst may also be a member, and counsel from OMIS may serve as counsel to the Selection Board.

The procurement documents for a Request for Proposals (RFP) are the following:

1) The RFP, with technical, business and cost specifications
2) A Transmittal Letter
3) Evaluation Criteria
4) An announcement for the Goods and Services Bulletin
5) A one-page "Notice to Vendors"
6) A mailing list of vendors to whom the "Notice to Vendors" will be sent
7) The Purchasing Agent's PAD-2a form

The procurement documents for an Invitation for Bids (IFB) are the following:

1) The IFB
2) A Transmittal Letter
3) A "Lowest Cost" formula
4) An announcement for the Goods and Services Bulletin
5) A mailing list of vendors to whom a copy of the IFB will be sent
6) The Purchasing Agent's PAD-2a form

In addition to preparing the procurement documents, the Selection Board is responsible for evaluating the vendors' bids or responses ranking the vendors using the evaluation criteria (RFP's) or "lowest cost" formula (IFB's), and preparing a Selection Board Report recommending a winning vendor.

For IFB's, the evaluation is done in one step. The Selection Board identifies the vendor with the lowest cost who meets all of the technical and business requirements specified in the IFB.

For RFP's, the evaluation process requires two, and possibly three steps. Step 1 is an evaluation of the vendors' Technical and Business Proposals. Step 2 is an evaluation of the vendors' Cost Proposals. Step 3 is a demonstration/benchmark (which may be omitted for some procurements). Each step has a maximum number of points. The winning vendor is the vendor with the highest number of total points (all steps combined). Selection Boards may not begin step 2 until the results of step 1 have been approved by the Director of BSPP.

d. BSPP, Purchasing Agent. The final Selection Board Report must be approved by the Director of BSPP and the Purchasing Agent.

e. Agency. Once the Selection Board Report has been approved, the agency nominates a Contract Negotiating Team (which may but need not be the same as the Selection Board, and for some procurements may be one person). The nomination letter is forwarded to the Director of OMIS, who may add or delete names. Usually a Counsel from OMIS's Office of General Counsel is made a member of the team.

f. Contract Team. The Contract Negotiating Team is responsible for scheduling meetings with the winning vendor, and for negotiating a contract. (Note: For IFB's, the Contract Team may be able to forego negotiating a contract, and substitute a Purchase Order instead, depending on the goods or services and the amount of funds involved.)

Blanket Contracts

If the goods or services are available from a blanket contract, then the procurement procedure is greatly simplified. The agency prepares an order, using a standard Order Form available from BSPP. Once the order is approved by the Director of BSPP, it is forwarded to the Purchasing Agent, who issues a Purchase Order.

Step 8. OMIS - Contract Approval. OMIS Counsel must ensure (among other things) that contracts BSPP and contain clauses required by statute, regulation or executive order and that the vendor has correctly filled out and signed the required disclosures forms. If the type of procurement uses a blanket contract, there is already an approved contract on file, and the legal review is limited to ensuring that the order complies with the terms of that contract. No additional contract is necessary.

There are several cases in which there will be no apparent "contract". IFB's (and some RFP's) can sometimes be completed simply with a purchase order. The contract in such cases is the signature of the vendor on the Purchasing Agent's PAD-2a form, showing the vendor's acceptance of the technical and business specifications. Another case is a request for data communication lines. Here OMIS requires a telephone company work order signed by the agency. The contract in such situation is the filed tariff. A third case is a lease to purchase conversion. In this case a letter to the vendor serves as the "contract."

In summary, then, step 8 of the AF-29 process requires one of the following:

a) A contract (negotiated by the Contract Negotiating Team);
b) An order form against a blanket contract already in place which the Purchasing Agent will attach to a Purchase Order;
c) A work order (for leased phone lines)
d) A letter (in the case of lease to purchase conversion).

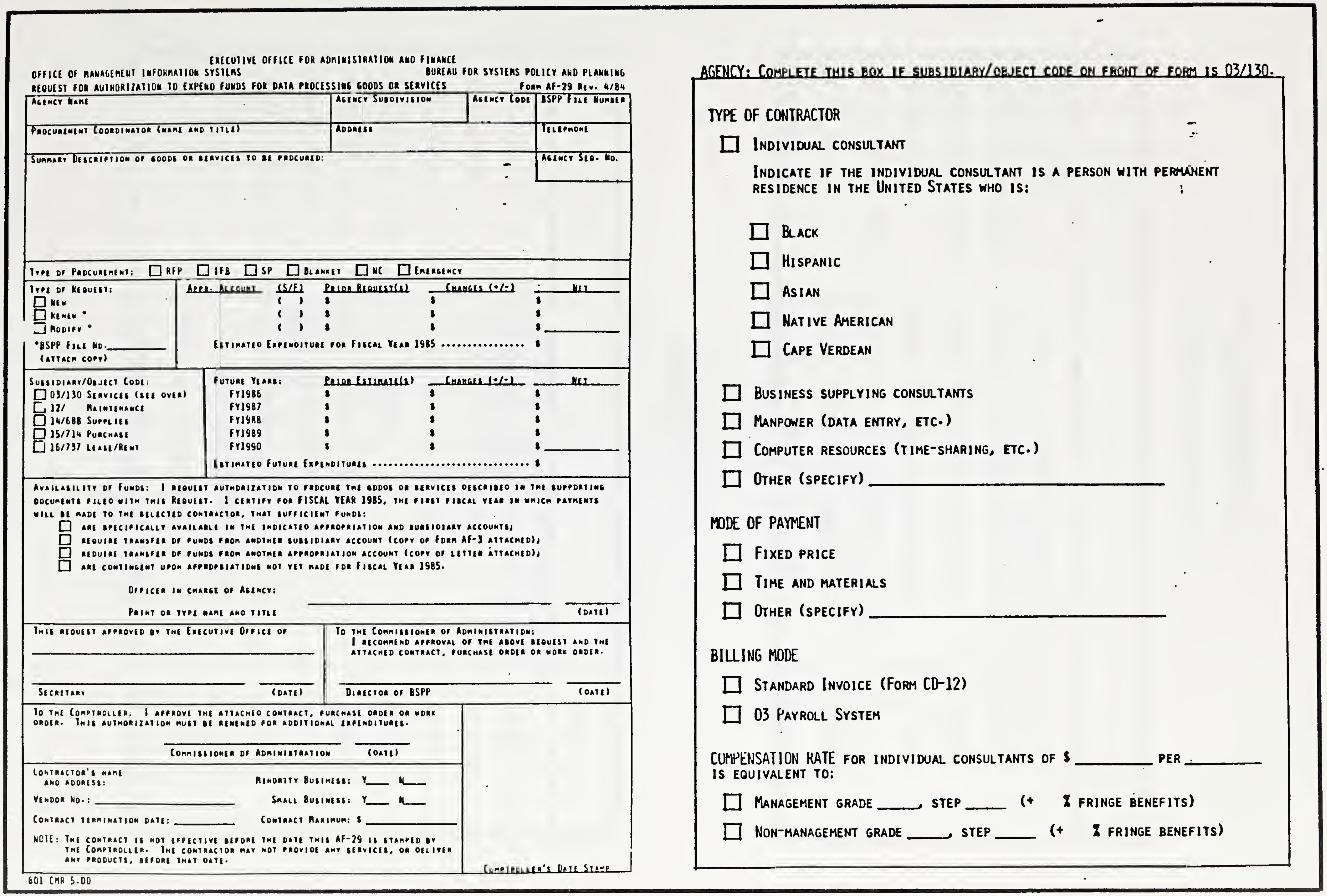
Step 9. OMIS - Final AF-29 Approval. Once the contract (or subsititute) has OMIS Counsel approval, the AF-29 is subject to final review by the Director of BSPP and the Director of OMIS.

Step 10. Filing with the Comptroller. Once approved, a copy of the AF-29 and the contract (or substitute) is filed with the Comptroller.

On receipt of the AF-29, the Comptroller affixes a date stamp. It is illegal for agencies (other than those exempt from the AF-29 process) to expend funds for data or word processing goods or services prior to the date of the Comptroller's date stamp on the AF-29.

Agencies should include in all "03" and "07" contracts a clause to the effect that vendors may not lease or purchase data processing goods and services with funds received from the agency under the contract without an approved AF-29.

For further information, refer to Administrative Bulletin 82-5, and the OMIS Guidelines for the Bulletin. Also, questions may be addressed to the BSPP Director or the OMIS General Counsel (727-2160).



EXECUTIVE OFFICE FOR ADMINISTRATION AND FINANCE
OFFICE OF MANAGEMENT INFORMATION SYSTEMS
BUREAU FOR SYSTEMS POLICY AND PLANNING
REQUEST FOR AUTHORIZATION TO EXPEND FUNDS FOR DATA PROCESSING GOODS OR SERVICES
Form AF-29 Rev. 4/84

Agency Name	Agency Subdivision	Agency Code	BSPP File Number
Procurement Coordinator (name and title)	Address		Telephone
Summary Description of goods or services to be procured:			Agency Seq. No.

Type of Procurement: ☐ RFP ☐ IFB ☐ SP ☐ Blanket ☐ NC ☐ Emergency

Type of Request:
☐ New
☐ Renew *
☐ Modify *
*BSPP File No. ____________
(attach copy)

Appr. Account	(S/F)	Prior Request(s)	Changes (+/-)	Net
	( )	$	$	$
	( )	$	$	$
	( )	$	$	$ ________
Estimated Expenditure for Fiscal Year 1985				$

Subsidiary/Object Code:
☐ 03/130 Services (see over)
☐ 12/ Maintenance
☐ 14/688 Supplies
☐ 15/714 Purchase
☐ 16/737 Lease/Rent

Future Years:	Prior Estimate(s)	Changes (+/-)	Net
FY1986	$	$	$
FY1987	$	$	$
FY1988	$	$	$
FY1989	$	$	$
FY1990	$	$	$ ________
Estimated Future Expenditures			$

Availability of Funds: I request authorization to procure the goods or services described in the supporting documents filed with this Request. I certify for FISCAL YEAR 1985, the first fiscal year in which payments will be made to the selected contractor, that sufficient funds:
☐ are specifically available in the indicated appropriation and subsidiary accounts;
☐ require transfer of funds from another subsidiary account (copy of Form AF-3 attached);
☐ require transfer of funds from another appropriation account (copy of letter attached);
☐ are contingent upon appropriations not yet made for Fiscal Year 1985.

Officer in charge of Agency:
Print or type name and title ____________________ ________ (date)

This request approved by the Executive Office of ____________________
____________________ Secretary ________ (date)

To the Commissioner of Administration:
I recommend approval of the above request and the attached contract, purchase order or work order.
____________________ Director of BSPP ________ (date)

To the Comptroller: I approve the attached contract, purchase order or work order. This authorization must be renewed for additional expenditures.
____________________ Commissioner of Administration ________ (date)

Contractor's name and address:
Minority Business: Y___ N___
Vendor No.: ____________
Small Business: Y___ N___
Contract termination date: ____________
Contract Maximum: $ ____________

NOTE: The contract is not effective before the date this AF-29 is stamped by the Comptroller. The contractor may not provide any services, or deliver any products, before that date.

Comptroller's Date Stamp

601 CMR 5.00

AGENCY: COMPLETE THIS BOX IF SUBSIDIARY/OBJECT CODE ON FRONT OF FORM IS 03/130.

TYPE OF CONTRACTOR

☐ INDIVIDUAL CONSULTANT

INDICATE IF THE INDIVIDUAL CONSULTANT IS A PERSON WITH PERMANENT RESIDENCE IN THE UNITED STATES WHO IS:

☐ BLACK
☐ HISPANIC
☐ ASIAN
☐ NATIVE AMERICAN
☐ CAPE VERDEAN

☐ BUSINESS SUPPLYING CONSULTANTS
☐ MANPOWER (DATA ENTRY, ETC.)
☐ COMPUTER RESOURCES (TIME-SHARING, ETC.)
☐ OTHER (SPECIFY) ____________________

MODE OF PAYMENT

☐ FIXED PRICE
☐ TIME AND MATERIALS
☐ OTHER (SPECIFY) ____________________

BILLING MODE

☐ STANDARD INVOICE (FORM CD-12)
☐ 03 PAYROLL SYSTEM

COMPENSATION RATE FOR INDIVIDUAL CONSULTANTS OF $ ________ PER ________ IS EQUIVALENT TO:

☐ MANAGEMENT GRADE _____, STEP _____ (+ % FRINGE BENEFITS)
☐ NON-MANAGEMENT GRADE _____, STEP _____ (+ % FRINGE BENEFITS)

AF-29 form

Appendix B

INFORMATION AND HELPLINES

Area	Affiliation	Telephone
Application Support Unit	Bureau of Systems Services	727-6220
Customer Service Department	Bureau of Computer Services	727-9146
Information Center	Bureau of Systems Services	727-5639
Network Control Center	Bureau of Computer Services	727-0710
Midas/Purchasing	Bureau of Systems Services	727-7487
PMIS	Bureau of Systems Services	727-7641
Technical Hotline	Bureau of Systems Services	727-3449

CUSTOMER CONTACTS

Name	Title/Affiliation	Telephone
Lou Angeloni	Assistant Director of Admin. for Budget and Administrative Services	727-3682
Bill Bates	Systems Programmer, Technical Service Unit	727-5852
Jim Buckner	Data Base Administrator	727-5852
Robin Fenn Elbot	OMIS Library	727-8333
Chuck Harvey	DASD Administration	727-5852
Nancy Maguire	Head Tape Librarian	727-2636
William Mancini	Director, Record Management Center	727-3681
Karen Neville	CICS Systems Administrator	727-5852
Tim O'Brien	DASD Administration	727-5852
Bob Ragucci	Manager, Computer Operations	727-2499

Appendix C

Network Troubleshooting Guide

For each condition, consider the possible causes one at a time until the condition is corrected or you reach the end of the action list.

CONDITION	POSSIBLE CAUSE	ACTION TO TAKE
Terminal is blank, dead No messages or symbols appear on it	Terminal is unplugged from electrical outlet	Plug it in.
	Terminal is switched off	Turn power switch on.
	Cable between terminal and control unit is not properly plugged in.	Check for loosely seated connectors and plug them in properly.
	Control unit is unplugged from electrical outlet.	Plug the power cord in.
	Control unit is switched off. Red light is not on.	Press Switch
	Control unit is not cabled properly into Modem.	Check for loose connectors and plug them in properly. "Customer Interface" (Adaptor) must be in place.
	Modem not plugged into electrical outlet.	Plug it in.
	Hardware problem.	Note the condition of the status lights on the modem and the controller, then call the Network Control Center at 727-0710.

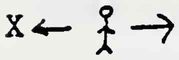
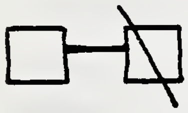
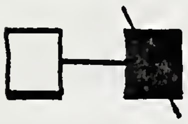
APPENDIX C

Network Troubleshooting Guide

CONDITION	POSSIBLE CAUSE	ACTION TO TAKE
Status line appears on terminal, but no keying is accepted and no other messages are displayed.	Terminal is not cabled properly to control unit.	Check for loosely - seated connectors and plug them in properly.
	Control unit is unplugged from electrical outlet. properly plugged in.	Plug the power cord in.
	Control unit is switched off. Red light is not on.	Press the power switch.
	Control unit is not cabled properly into Modem.	Check for loose connectors and plug them in properly "Customer Interface" (Adaptor) must be in place.
	Modem not plugged into electrical outlet.	Plug it in.
	Hardware problem	Note the condition of the status lights on the modem and the controller, then call Network Control Center at 727-0710
Status line shows: X +Z nnn	Communications problem.	Wait a few minutes, then attempt to clear condition by pressing the Reset key. If this does not work, work, call the Network Control Center at 727-0710.

APPENDIX C

Network Troubleshooting Guide

CONDITION	POSSIBLE CAUSE	ACTION TO TAKE
Status line shows: X-f	The action that was requested cannot be completed.	Clear condition by pressing Reset and proceed.
Status line shows: X SYSTEM	System has made keyboard inoperable.	Clear condition by pressing Reset and proceed.
Status line shows: X?+	Computer didn't understand last key pressed.	Clear condition by pressing Reset and proceed.
	Data keyed in at invalid cursor position.	Clear condition by pressing Reset. Use Cursor or Tab Keys to move cursor to valid position.
Status line shows: X NUM	Letter typed where only numbers are allowed.	Clear condition by pressing Reset and proceed.
Status line shows: 	Terminal sent order to printer but printer did not respond.	Check that printer's Run light is lit. Cancel device condition by holding down Alt Mode Key while pressing Reset key. If condition occurs again, check printer for:
Status line shows: 	Printer failure. Printer stopped in the in the middle of an operation.	Check printer for: . Run light on, . low paper supply, . paper jam, or . blown fuse Perform Device Cancel by holding down Alt Mode Key while pressing Reset. If condition does not clear, call Network Control Center at 727-0710

APPENDIX C

Network Troubleshooting Guide

CONDITION	POSSIBLE CAUSE	ACTION TO-TAKE
Printer's Stop Light is lit.	Low paper supply.	Follow the procedure to load new fanfold paper into printer.
	Paper jam.	Follow procedures to: . clear paper jam, and . load fanfold paper
	Blown fuse.	1. Open rear cover. 2. Inspect fuse. Replace if necessary 3. Close rear cover 4. Press Run Key.
No lights lit on printer.	Unplugged power cord.	Plug cord into socket.
Terminal responds with "SEQUENCE ERROR" when customer tries to logon.	Telecommunications to the computer are tied up because many customers are trying to sign on at the same time.	Wait for logon to proceed.
Terminal responds with "SESSION NOT BOUND" when customer tries to log on	Computer hardware problem. Computer has been brought down and will need to restarted	Call Network Control Center to find out how long the computer will be "down."
Terminal responds with "UNSUPPORTED FUNCTION"	Customer has hit ENTER key before typing in a valid logon command.	Type in a valid logon command.
Terminal responds with "APPLID PARAMETER INVALID"	Cross domains between computer are not working.	Call Network Control Center to find out how long cross domain will be down.

Appendix D

TABLE OF REFERENCE MANUALS

		Section Where Referenced
ABEND-AID:	Reference Manual, OS Release 4, October 1983	IV
ACCOLADE:	Volume I: Concepts & Capabilities, User's Guide, Maskeraid	IV
	Volume II: Error Messages, Skeleton Programmer's Guide	
ADABAS:	Introduction Manual ADA-410-000	IV
	Messages and Codes Manual ADA-411-060	IV
ASSEMBLER:	OS/VS - DOS/VS VM/370 Assembler Language GC33-4010	
	OS/VS Assembler Programmer's Guide GC33-4021	VII
	System/370 Principles of Operation GA22-7000	
CA-OPTIMIZER:	OS Technical Support Manual (Release 4.2)	IV
CICS:	Development Management System (DMS) GH20-2195	IV
	General Information GC33-0155	
	Application Programmer's Reference Manual SC33-0077	
COBOL Compiler:	IBM OS Full American National Standard COBOL GC28-6396	VI
	Library Programmer's Guide GC28-6483	VI
COM-PLETE:	Introduction to COM-430-001	IV
	COMPASS Reference Manual COM-430-090	
	User Utilities Manual COM-430-030	
DFSORT:	Getting Started With DFSORT SC26-4109	V
	Application Programming Guide SC33-4035	V
	Installation SC33-4034	V
	Reference Summary SX33-8001	V
EASYTRIEVE:	Reference Manual E9.0-8209	IV
EASYTRIEVE PLUS:	EASYTRIEVE PLUS Reference Manual GRM2.0-8210	IV
FOCUS:	Users Manual-1983	IV
	FOCUS Query Language Primer DN 40003.0683	
FORTRAN Compiler:	VS Fortran Installation & Customization (Release $.0) SC26-3987	VI
IMAGINE:	User's Introduction	IV
ISPF:	ISPF General Information GC34-2078	IV
	(Also See SPF)	
JCL:	OS/VS2 JCL.VS2 Release 3.8 GC28-0692	VII
	OS/VS Message Library: VS2 System Messages GC38-1002	VII
	OS/VS Message Library: VS2 System Codes GC38-1008	VII
	System/370 Job Control Language	
NATURAL:	Introduction NAT-120-001	IV
	Installation and Operations Manual NAT-120-010	IV
	User's Manual NAT-120-020	IV
	Reference Manual NAT-120-030	IV
	Reference Data Card NAT-120-031	IV
	Error Messages Manual NAT-120-060	IV

APPENDIX D
TABLE OF REFERENCE MANUALS

		Section Where Referenced
SPF:	Dialogue Management Services SC34-2036	
	SPF for MVS Program Reference SC34-2038	
	SPF for MVS General Information GC34-2039	
VSAM:	OS/VS2 Access Method Services GC26-3841	VIII
	Planning the Enhanced VSAM under OS/al Storage Access Method (VSAM) GC26-3842	VIII
	Programmer's Guide GC26-3838	
	Options for Advanced Application GC26-3819	

Appendix E

OMIS Customer Guide Acronyms

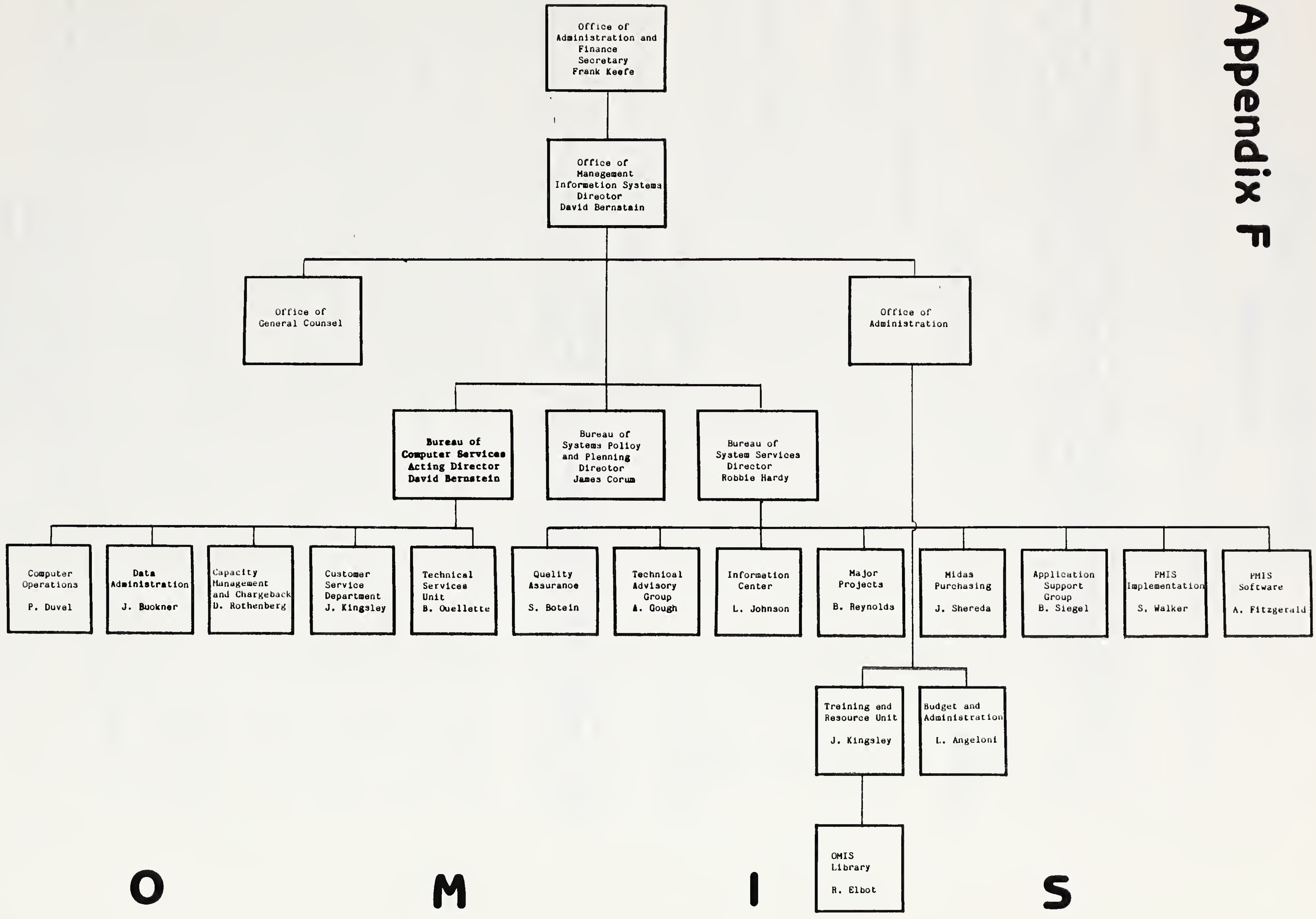
ADABAS	Adaptable Data Base System
ADP	Automated Data Processing
BCS	Bureau of Computer Services
BMS	Basic Mapping Support
BPI	Bytes Per Inch
BSPP	Bureau of Systems Policy and Planning
BSS	Bureau of Systems Services
CA	Control Area
CI	Control Interval
CICS	Customer Information Control System
COBOL	Common Business Oriented Language
CPS	Characters Per Second
CPU	Central Processing Unit
CRT	Cathode Ray Tube
CS	Computer Services
DASD	Direct Access Storage Device
DB	Data Base
DBA	Data Base Administration
DD	Data Dictionary
DISP	Disposition
DMS	Development Management System (CICS)
DMS/OS	Disk Management System
DOS	Disk Operating System
DP	Data Processing
DSF	Dataset Function
DSN	Dataset Name
ESDS	Entry-Sequenced Dataset
EXPDT	Expiration Date
FORTRAN	Formula Translator
FY	Fiscal Year
GDG	Generation Data Group
GDS	Generation Datasets
IBM	International Business Machine
IC	Information Center
IIPS	Interactive Instruction Presentation System
IIS	Interactive Instructional System
IMS	Information Management System
I/O	Input/Output
ISPF	Interactive Structured Programming Facility
ISAM	Indexed Sequential Access Method
JCL	Job Control Language
JES	Job Entry Subsystem
KSDS	Key Sequenced Data Set
LPM	Lines Per Minute
MP	Multiprocessing
MVS	Multiple Virtual Storage
OMIS	Office of Management Information Systems
OS	Operating System
PDF	Program Development Facility

APPENDIX E

OMIS Customer's Guide Acronyms

RACF	Resource Access Control Facility
RMC	Records Management Center
RRDS	Relative-Record Data Sets
SAS	Statistical Analysis System
SHR	Share
SPF	Structured Programming Facility
TNL	Technical Newletter
TRU	Training and Resource Unit
TSO	Time-Sharing Option
TSU	Technical Services Unit
VSAM	Virtual Storage Access Method
VALU-LIB	Value Library
VOLSER	Volume Serial Number
VTAM	Virtual Telecommunication Access Method

Appendix F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